Construction Management - Exploding Some Myths
Vol: 24, Num: 2
Pg. 13-15
Kluenker, Charles
The author presents the value of utilizing the construction management process in building educational facilities. He defines the process and incorporates discussion on fast tracking, construction costs and opinions of architects and contractors. The author estimates the average cost savings on a project to be 15% when using construction management.

A Comparative Analysis of Unit Building Costs for Primary and Secondary Schools in Southwest Province of Cameroon
Vol: 24, Num: 2
Pg. 15-16
Mbua, Fritz Ndiva
The author compared the total cost of schools per student station between primary and secondary as well as public and private schools. The findings are that public schools cost more than private schools and secondary schools cost more than primary schools. The cost data was provided by an architectural firm in Cameroon, West Africa.

The Rates of Return to Primary and Secondary Education in Cameroon
Vol: 24, Num: 2
Pg. 16-17
Mbua, Fritz Ndiva
The author compares the rate of return between primary and secondary education in Cameroon, West Africa. He developes a mathematical model including present value benefits, present value costs, length of schooling and discount rate. Data from various sources were analyzed with the results indicating that society benefits more by investing in primary education as opposed to secondary education by a factor of 6 times the rate of return in Cameroon.

Research Contributes to New Concepts in Playground Design
Vol: 24, Num: 2
Pg. 18-19
Hawkins, Harold L.
The author provides an overview of the book, 'Playground Design', by Aase Eriksen. Child development and learning are treated as the basic purposes of play. Denmark has provided leadership to other nations in the development of playgounds since 1939. The book proposes school sites as community parks. Hawkins concludes that facility planners in all types of educational settings will find this compilation a fine resource, providing an increased awareness of the critical nature an importance of playground design.

Energy Management in Schools During the 1980's
Vol: 24, Num: 2
Pg. 19-21
Drake, Thomas S.
The author cites evidence that the energy crisis of the prior 10 years is beginning to deflate. He further suggests that we strive to reach a zero energy growth rate as soon as possible to counter potential outside influences or control. Several examples of energy efficiency were provided including: converting electric boilers to natural gas, reducing electrical operating times; adopting temperature settings to reduce operating time; using energy saving light bulbs; using meter peak electrical loads; using energy management systems and, thermal heat storage. The author suggests prioritizing retrofits based upon a return on investment.

Opportunities for Architects and Engineers in Energy Performance Contracting at Schools and Colleges
Vol: 24, Num: 3
Pg. 04-05
Wolcott, David R.
The author addresses energy performance contracting with no upfront cost to the owner; rather, fees are retained from the savings generated by the project. Furthermore performance contracting can be used as a marketing tool. By entering into joint ventures with energy service companies, architects and engineers will provide consultation, and representation in negotiations with performance contractors. Included is a list of services as well as a financing scheme that consulting architects and engineers might provide.

A High School Energy Reduction Program
Vol: 24, Num: 3
Pg. 06-09
Linzell, Charles L.
The author describes an energy reduction program completed at Upper Arlington High School, located in a suburb of Columbus, OH. The school realized a 24% decrease in the annual utility cost, due primarily to the effort put forth to reduce energy usage. Tables illustrate the three-step approach employed to achieve these results: 1. data collection, 2. corrective action, 3. measurement of performance with follow-up.

The Proposed New ASHRAE Standard 90
Vol: 24, Num: 3
Pg. 10-12
Moore, J. Carey
The author discusses the background of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the process for the development and approval of new association standards, many of which serve as the basis for state building and energy codes. Standard 90, initially approved in 1975, specifies the minimum requirements for equipment and subsystem performance and is adhered to in all 50 states. The author discusses subsequent revisions and details the newest proposal in updating Standard 90, including objectives addressed by the standards committee.The first draft was released for public review in June, 1985.

Energy Conservation in Existing Institutional Buildings (An ASHRAE Standard Is Being Revised)
Vol: 24, Num: 3
Pg. 12-14
Fuller, Robert H., P.E.
Acknowledging the policy statement appearing in 'CEFPI's Responsiblilty In The Energy Future', the author cites the need, 'to optimize energy efficiency in exisiting facilities recognizing that a significant majority (up to 85%) which will be operating in the year 2000 exist today.' The ASHRAE 100 Series Standards committee on revision, attempting to address the action that needs to be taken in these buildings, has three objectives: 1. maintain committee membership representing Institutional Building Owners; 2. address unresolved comments from Public Review of 1981 Standard; 3. develop revisions that are practical and effective in reducing energy waste in exisiting institutional buildings. According to the author, the Standard will encompass compliance procedure, building lighting survey, and the importances of a solid operation, maintenance and monitoring system. In conclusion, the author states that effective energy management will provide an improved financial picture for educational institutions.

The New Field of Submetering
Vol: 24, Num: 3
Pg. 14-15
Chapman, David F.
Traditionally, energy consumption in educational institutions is measured by standard individual public utility meters, an expensive proposition. In an attempt to provide the same service at a lower cost, private 'submetering' firms have emerged nationwide. Nearly all systems of the submetering market contain three areas of involvement: 1. energy measurement; 2. recorded usage; 3. information gathered or collected by computer. The author avers that once the submetering system is installed, energy costs can be established and reduced. The initial capital investment can be a stumbling block, but the savings generated far outweigh the cost. According to the author, energy savings for the average college campus can reach the 30% level.

Oil Overcharge Restitution Funds
Vol: 24, Num: 3
Pg. 16-18
Yewell, John W.
The author outlines the US Supreme Court action against Exxon Corporation for overcharges on oil cost, and the resultant judgment of approximately $2.1 billion to be disbursed to the public through funding of energy programs. The author lists the five energy programs selected by the Court to be administered by state agencies for restitution and identifies parameters to which the states must adhere in administering those funds.

The Institutional Conservation Grants Program
Vol: 24, Num: 3
Pg. 18-20
Rose, Patricia H.
Listing examples of energy savings at various educational facilities, the author describes the 50/50 matching grants program established in 1978 by the National Energy Conservation Policy Act. Stating that 'energy is, indeed, manageable,' the author lists significant changes that have occurred since the inception of the federal grants program. Outlining the new direction the Institutional Conservation Progams have taken, the author avers that the concept of energy conservation, now referred to as 'energy efficiency,' can become the most profitable and manageable part of institutional operations.

Footnote to the Institutional Conservation Grants Program
Vol: 24, Num: 3
Pg. 20
Yewell, John W.
This article examines savings-based financing agreements, based on the Department of Energy's (DOE) rules encouraging the use of private funding to reduce energy use and cost in institutional facilities. According to the author, this practice promotes cooperative and profitable partnerships between architects, engineers, building owners and energy service companies, saving valuable dollars.

The Nature of Energy Shared Savings
Vol: 24, Num: 3
Pg. 21-22
Schooley, John P.
Comprehensive shared-savings energy management encompasses four crucial services: engineering, financing, energy system improvement and monitoring. Payments to the energy management company are based solely on savings realized. The author, while presenting the mutual benefits for user and consultant, offers suggestions for selecting consultants based on merit and fee negotiation.

The View from Here
Vol: 24, Num: 4
Pg. 02-02
Stenzler, Yale
This on-going column provides an introductory summary of articles appearing in this issue. This month's Journal focuses on desegregation/integration—issues and solutions.

Rosenwald Schools
Vol: 24, Num: 4
Pg. 04-05
Alcorn, Virgie
Beginning with an historical review of philanthropic funding to promote public education for all groups in the South, the author chronicles the efforts of Julius Rosenwald whose funding gifts were designated for elementary schools for black children. The author traces the growth of the Julius Rosenwald Fund and building program from its inception in 1917 until 1932 when the last of 5,358 modern rural black schools was built. The author includes interesting accounts of the Rosenwald building program.

Preparing for Voluntary Desegregation: The Opening of Alternative Schools of Choice
Vol: 24, Num: 4
Pg. 05-07
Murphy, John A.
As Superintendent of the Prince George's County Public Schools, Maryland, the author describes the process of implementing a federally-mandated voluntary desegregation program. The Maryland program involves 'magnet schools', featuring unique alternative educational programs attracting non-black students, and 'Milliken II schools', limited in significant integration opportunities due to geographic isolation. Within four months, 12 magnet schools and 10 Milliken II schools were successfully opened, achieving the desegregation enrollment guidelines established by a federal court. The author includes descriptions of the various educational programs, accelerated plans for subsequent years, facility renovations and additions unique to the programs involved, additional staffing, increased personal accommodations, transportation, food services and other operational issues.

Desegregation - A Continuing Challenge To Planners
Vol: 24, Num: 4
Pg. 07-09
Stewart, G. Kent
This article historically traces the issue of desegregation, outlining key U.S. Supreme Court decisions challenging the long-standing policy of 'separate but equal' schools sustained in 1896. Beginning with the Supreme Court reversal cited in Brown vs. Board of Education of Topeka (1954, Kansas), and including the landmark Milliken v. Bradley case (1997, Michigan), the author proposes applicable guidelines for facility planners, faced with the challenge of planning and advising within subsequent Federal mandates involving desegregation and integration.

Facilities Impact of Desegregation - The Milwaukee Experience
Vol: 24, Num: 4
Pg. 09-13
McMilin, Edward M.
Focusing on the issue of desegregation, the author examines the lengthy litigation proceedings leading to the U.S. District Court decision of unconstitutional segregation in the Milwaukee Public Schools (MPS), Wisconsin. Prior to the development of plans for compliance with court mandates, MPS developed seven goals in order to avoid the pitfalls other desegregation efforts experienced, which the author outlines. Included in the article is a detailed description of the specialty school concept utilized by MPS — Options for Learning, Schools for the Transition, and High Schools Unlimited. The author uses tables and graphics to explore the differences in costs for various programs included in the specialty schools and discusses funding. In conclusion, the author notes the success of the MPS effort and suggests that it will serve as a model for statewide desegregation efforts.

It's the Law—In Brief/ Referendum Must Follow Procedure
Vol: 24, Num: 4
Pg. 14
Stewart, G. Kent
Statutory procedure must be strictly adhered to when preparing school bond referendums. The court reviews procedure and tolerates no errors in timing, wording or advertising. The author strongly suggests that school boards use great care under competent legal supervision in following procedure.

Total Community Resource Planning
Vol: 24, Num: 5
Pg. 04-06
Earthman, Glen I.
Total community resource planning should be implemented to utilize all existing and planned physical facilities to accommodate all needs in a geo-political area. The author examines the independent nature of the educational systems in the U.S., and their attendant planning in isolation. He avers that such isolated planning duplicates efforts that Total Resource Planning could reduce. Although sharing of facilities is not a new concept, it usually occurs following construction, rather than in the planning stages. He then suggests the creation of a Total Resource Advisory Board to plan ahead by identifying space needs and available matching resources. The author lists 5 steps to enable communities to affect pro-active, cooperative planning.

The Dukeries Complex, Nottinghamshire, England, A Co-Operative Approach
Vol: 24, Num: 5
Pg. 07-10
Sowden, Roy
The author, principal of The Dukeries Complex in Nottinghamshire, England, describes the planning processes and the comprehensive community school which resulted from cooperative efforts between various governmental agencies and community groups. This school is a classic example of the concept of Total Community Resource Planning where the needs of the larger community are met by the physical resources of the entire community. In existence since 1964, the Dukeries School was transformed into a community resource, designed to service the young, the old, the fit, the unemployed, the handicapped—the entire family. (Includes photographs, floorplans and graphs)

The Alberta Community School Facilities Study
Vol: 24, Num: 5
Pg. 11-13
Kulba, John W. and Warren E. Hathaway
In Canada, the Alberta Provincial Government endorsed the concept of community schools which prompted a study designed to develop policy for implementing that idea. The authors of this article describe the study, listing the findings of the task force. Agreeing on three categories to describe community schools (designated community school, declared community school, and community-use school), the task force developed six policies pertaining to the funding and use of community schools. These policies and the rationale behind them are examined.

Community Use of School Facilities
Vol: 24, Num: 5
Pg. 13-15
Rhoads, Homer E.
Director of the Community Use Section of the Fairfax County Public Schools in Virginia, the author describes the program implemented in the 10th largest school district in the country. The entire county has access to all of its 157 public school buildings for various programs. By way of example, the author explains that every school system in the country could initiate such a program — leading to more intense cooperative planning to serve the larger community. Recommendations on program design and administrative procedures are included in this article.

The People's Space
Vol: 24, Num: 5
Pg. 15-17
Steele, Marilyn H.
The author describes the Planning Assistance Kit, developed by CEFPI and Educational Facilities Laboratory. Tested in 500 communities, the kit was originally designed to help in total resource planning efforts for educational facilities, but, as the author relates, it has been successfully utilized in other segments of the community to facilitate planning for a variety of problems. The article summarizes the 7 stages of community-based planning defined in the planning assistance kit: 1. create a plan for planning; 2. gather information; 3. set priorities; 4. define strategies; 5. explore options; 6. refine plan; 7. implement the plan.

User Satisfaction of Elementary School Facilities
Vol: 24, Num: 5
Pg. 17-18
Day, C. William
This issue's 'Research Review' column focuses on a study directed by the author to determine the degree of satisfaction for users of elementary school facilities. The study measures satisfaction with regard to user involvement in the planning process, the architect's experiences in designing school facilities, and the distance between the district and the architect's office. Underlining the value of written educational specifications and user input, the author lists findings, conclusions and recommendations for future planning of educational facilities.

Design and the Design Process
Vol: 24, Num: 6
Pg. 04-05
Bullock, Ellis W., Jr.
In this article, the author addresses the total design process, focusing on the need for integration of program with a thorough understanding of design principles. According to the author, the primary architectural services employed in designing educational facilities are: 1. design, 2. construction documentation, 3. construction administration. Design is the most important of these services and is a process of analysis, synthesis and judgment. Critical areas of the design process are highlighted: facilities program, educational specifications, site selection and aesthetic judgment.

How Much Is Enough?
Vol: 24, Num: 6
Pg. 06-08
Smith, Patricia B.
A specialist in the field of insurance, the author discusses the liability issue as one confronting all segments of the construction industry. Foremost in the minds of many administrators, basic areas requiring liability coverage are addressed: 1. workers compensation and employers liability; 2. property insurance; 3. motor vehicle liability; 4. public liability; 5. cancellation timeframes; and 6. limits of liability. In summation, the author advocates a team approach, including facility planners, architects, attorneys and insurance professionals, to ensure maximum protection of the educational agency's resources.

Indoor Air Pollution: An Energy Management Problem?
Vol: 25, Num: 1
Pg. 12-13
Cousins, David M. and John W. Kulba
Energy conservation efforts to create air-tight buildings has caused increased concern of air pollution. This article discusses five contaminants to air quality: cigarette smoke, combustion products, microorganisms, organic compounds, and radon gas. Future energy conservation efforts should preserve air quality while reducing energy consumption.

Community Energy Management Programs for Commercial Building Owners and Managers
Vol: 25, Num: 1
Pg. 14-17
Chick, Walter S.
Chick describes the Downtown Buiding Energy Conservation Program of Ontario—a partnership with the private business community to monitor and maintain energy conservation practices. Case studies are presented.

Balancing the Energy Pendulum
Vol: 25, Num: 1
Pg. 17-18
MacKinnon, Sharon
MacKinnon outlines the importance of energy management on a municipal level, and describes conservation efforts by the City of Kitchener, Ontario. Examples are provided of how Kitchener utilized energy management practices in the operation of their recreation facilities.

So What's New? A Ten Year Follow-Up Study of Teacher Attitudes and Practices: Implications for Planners, Administrators and Teachers
Vol: 25, Num: 1
Pg. 19-23
Williams, Douglas F., Morgan, Thomas E. and Marylou J. Morgan
This article summarizes the results of two studies, conducted 10 years apart that assess teacher attitudes and practices in traditional and open space classrooms. Results show a preference for open spaces among teachers, along with increased multi-teacher practices and individual student practices in open space facilities.

The Epistitial Space
Vol: 25, Num: 1
Pg. 32-33
Miner, Tim
In this very short summary of a mini-session presentation at CEFPI's 64th International Conference, Miner describes the design of the Heritage Medical Research Building in Alberta. The building is designed to maximize flexibility and access through utilization of an epistitial space.

Total Conservation: Ethos or Pathos
Vol: 25, Num: 1
Pg. 4-6
Keith, William J. B.
Keith asserts the importance of energy conservation efforts. He places a special responsibility on the United States and Canada because they are the world's largest energy consumers (per capita) to adopt a conservation ethic. Suggestions for promoting world-wide energy conservation are provided.

Energy—A Force for Change
Vol: 25, Num: 1
Pg. 7-9
Rankin, John
Rankin presents Ontario as a case study for long-term energy conservation planning. Ontario adopted programs for correcting physical plant problems in education. Energy consumption within Ontario schools was reduced by 20 percent. Rankin weighs the benefits and costs of energy conservation efforts in Ontario schools.

Letting Go—An Approach to Energy Management
Vol: 25, Num: 1
Pg. 9-11
Pond-Brevik, Margaret
The author presents the pros and cons of adopting a centralized vs. decentralized energy management program. The York Region Board of Education is presented as a case study of a decentralized energy management program.

A Window on the Future at the Annual Meeting
Vol: 25, Num: 2
Pg. 18-20
Earthman, Glen
Three scholars and three educational facility planning professionals present their reactions to the first general session presentation, 'A Window on the Future: A View of Education and Education Facilities.' The presentation included discussion of societal and educational trends, and projected impact on facilities.

Climbing Mt. Technology with Smart Buildings
Vol: 25, Num: 2
Pg. 21-23,36
Swensson, Earl S.
This article provides a summary of the second general session presentation at CEFPI's 63rd International Conference. The presenters discuss the implications of technological innovations to facility space, including electrical and mechanical systems, equipment, and furnishings.

School Buildings of the Future
Vol: 25, Num: 2
Pg. 24-27,36
Gardner, Dwayne E.
Gardner applies the 'megatrends' explored by John Naisbitt to the future of education and facility planning.

Modernizing Schools
Vol: 25, Num: 2
Pg. 28-29
Le, Hoang D.
In this short abstract of his mini-session presentation, Le describes the success of Alberta's school modernization program. Le describes the steps involved in approving a modernization project with the Alberta Education Department.

A Space Utilization Study at the Secondary Level
Vol: 25, Num: 2
Pg. 29
Brown, Douglas H.
In this short abstract of his mini-session presentation, Brown examines the process of conducting a space utilization study, and the benefit of having such information.

Current and Potential Influences on Facility Planning: The Los Angeles Unified School District Project
Vol: 25, Num: 2
Pg. 29-30
Kimball, Byron L.
In this short outline of his mini-session presentation, Kimball lists the educational facility planning issues in Los Angeles.

Master Planning/Facility Management and the Computer
Vol: 25, Num: 2
Pg. 30
Armington, Steve and Rick LaRosa
In this short abstract of their mini-session presentation, the authors discuss the benefits of the CADD drafting system in creating school master plans.

The Adequacy and Utilization of Existing Facilities in Higher Education
Vol: 25, Num: 2
Pg. 31
Paschal, James A.
In this short abstract of his mini-session presentation, Paschal presents the 'Facilities Inventory and Utilization Report'—a statistical profile of higher education facilities. Reports from South Carolina revealed that while the state had improved their use of higher education facilities, adequacy remained an issue.

Space Standards for Community Colleges and Universities
Vol: 25, Num: 2
Pg. 31
Chick, Charles E. and Loyce K. Farr
In this short abstract of their mini-session presentation, the authors present a model for defining the facility space needed to house an educational program (the model itself is not included in this article).

Volume 25

Asbestos Abatement
Vol: 25, Num: 2
Pg. 32
Folkes Goldberg, Arleen
In this short abstract of a mini-session presentation, the author outlines the health risks associated with asbestos exposure, and the facility implications of controlling asbestos.

Research Investigating and Square Footage
Vol: 25, Num: 2
Pg. 32-33
Smith, Nancy R.
From her mini-session presentation, Smith contributes a table of 'Space Standards for Non-Instructional Areas in Public Schools.'

Effects of Light and Color on Pupil Achievement, Behavior and Physiology
Vol: 25, Num: 2
Pg. 34
Hathaway, Warren E.
In this short abstract of his mini-session presentation, Hathaway presents a study on the physioiogical and behavioral effects of color and lighting conditions in schools. Findings revealed benefits to using ultraviolet light. Furthermore, while warm colors were found to stimulate students, cool colors were found to calm them.

Jerusalem—The Perfect Location for Edusystems 2000
Vol: 25, Num: 2
Pg. 35-36
Hill, Franklin L.
This article reports on the 'International Congress on Educational Facilities'—a conference that included representation by over 20 countries. The socio-historical backdrop of Israel enriched the conference experience.

International Symposium on Educational Facilities for Asian Countries
Vol: 25, Num: 2
Pg. 37-38
Kulba, John W.
Kulba reports on his experience at the International Symposium for Educational Facilties for Asian Countries.

Summary of I.S.E.F. Keynote Address
Vol: 25, Num: 2
Pg. 38-40
Amagi, Isao
This transcript of the keynote address at the I.S.E.F. Conference in Japan, Amagi outlines the categories of modern schools, and makes international comparisons on schools around the world.

A Window on the Future: A View of Education and Educational Facilities
Vol: 25, Num: 2
Pg. 4-17
Hathaway, Warren E. and D. Robert Fiedler
This article provides a summary of the first general session presentation at CEFPI's 63rd International Conference. The paper examines in detail both past and future trends in society, and their projected impact on education and school facilities. Using 'Lewin's force Field Analysis' to measure the impact of the forces influencing education today, the presenters give three possible senarios for the future direction of public education.

Educational Facility Implications: The Report of the National Governors' Association—Time for Results
Vol: 25, Num: 2
Pg. 40-42
Stenzler, Yale
Stenzler examines the formation of several task forces under the National Governors' Association—one of which is the Task Force on School Facilities.

How Architectural Research is Used in Educational Facilities and Design in Japan
Vol: 25, Num: 2
Pg. 42-43
Nagakura, Yasuhiko and Mikio Moronuki
Adapted from a presentation at Edusystem 2000 in 1986, this short article explores the need for a 'revolution' in education design in Japan which would create more diversified and flexible spaces.

Case Study of Indian Prairie School District
Vol: 25, Num: 3
Pg. 13-15
McClain, Jerry D.
McClain examines the Indian Prairie School District, near Chicago, and its experience with enrollment projection. The district has used the Cohort Retention Ratio to calculate their projections. Tables are provided as examples.

Confirming Enrollment Projections in Rural Districts
Vol: 25, Num: 3
Pg. 16-17
Stewart, Kent G.
Erratic enrollment levels in rural districts make the use of a variety of projection methods necessary. Methods such as the cohort survival method are presented, but Stewart suggests that such data be supplemented with a district-wide census survey.

Light and Color Research Finalized
Vol: 25, Num: 3
Pg. 18-19
Sydoriak, Diane E.
This article describes research conducted in the North Little Rock School District on the effect of color and lighting conditions on student health and achievement. The researchers found that students in classrooms with blue walls had lower blood pressure than students in classrooms with white walls. Furthermore, teachers reported less behavior problems in the blue classrooms. No effect was found on student achievement.

Enrollment Projection: A Methodology for Eras of Growth and Decline
Vol: 25, Num: 3
Pg. 4-7
Lows, Raymond L.
An accurate student enrollment projection is essential in planning educational programs and facilities. Lows outlines methods for predicting future school enrollment levels, along with the advantages and limitations of each method. Tables are provided for the purpose of illustration.

Demographic Sources and Data Available for School District Planners and Architects
Vol: 25, Num: 3
Pg. 7-13
Glass, Thomas E.
This article describes the data available to school districts for the purpose of enrollment projections. Some of the types of data discussed are birth, migration and census data, along with county planning, building permits, and commercial statistics. The authors discuss the nature of the available data, and how it might be used to project future enrollment.

Good Roof Construction Makes Sense
Vol: 25, Num: 4
Pg. 10-13
Hubert, Edward F.
Poor roof engineering and construction can shorten the life of roofs. Hubert guides the reader through the basics in roof design and construction. He recommends the employment of an architect/engineer/roof consultant. A brief overview of the inspection process is also provided.

Roof Management Program—Three Steps to Success
Vol: 25, Num: 4
Pg. 14-15
Young, D. B. Jr.
Young presents three steps to an effective roof management program. First, information on the roof design, installation, warranty and inspections must be gathered and filed. Second, a periodic roof inspection program must be established. Finally, a maintenance schedule must be implemented.

A Facility for School Maintenance Operations
Vol: 25, Num: 4
Pg. 16-19
Hargraves, Darroll and Pamela S. VanWechel
The authors present Ketchikan School District in Alaska as a case study for designing a maintenance facility. Communication with the district administrators and the community on the need for such a facility is essential. The authors summarize the factors to consider when building a maintenence facility.

An Exploration of the Use of Public Archival Records in Determining Some Aspects of Educational Facilities Planning
Vol: 25, Num: 4
Pg. 19-22
Al-Soliman, Tarik M.
Archival records can be a valuable resource when seeking information on educational facilities planning and design in Third World countries. In this study, educational facility information was gathered from media records (e.g. newspapers) in Saudi Arabia. The findings enabled researchers to categorize services requested by school districts by type of building. Tables are included.

Research Needs in the Field of Educational Facility Planning
Vol: 25, Num: 4
Pg. 23-24
Earthman, Glen I.
Earthman briefly reviews recent research that analyzes the effect of facilities on learning, and stresses the need for additional research in this area.

Last In; First Out: Maintenance Budgets
Vol: 25, Num: 4
Pg. 4-6
Chick, Charles E., Patricia B. Smith and George T. Yeabower
School districts often fail to prioritize facility maintenance when determining the annual budget. Consequently, the costs of deferred maintenance escalate. The authors assert that states should share some of the financial responsibility for facility maintenance with school districts.

A Step-By-Step Plan for an Inhouse Maintenance Audit of School Buildings
Vol: 25, Num: 4
Pg. 6-9
Mutter, Davida W. and Randolph Nichols
In order to fix the problem of deteriorating school buildings, begin with a comprehensive evaluation of the maintenance needs. The authors provide a 7 step plan for assessing the condition of existing school buildings, from selecting a building survey to creating a long-term building renewal plan. The advantages and disadvantages of conducting such an assessment are discussed, in order to help districts make an informed decision.

School Over the Mine
Vol: 25, Num: 5
Pg. 12
McCarthy, William
This article provides a brief description of the Negaunee High School in Michigan. The school building was renovated from a mining facility. The quality of the structure, square footage, and cost savings made the renovation an effective option for the school district.

Texas School Facilities Study
Vol: 25, Num: 5
Pg. 13-14
Betz, Loren E. and Frank W. Lutz
Under a Texas Senate resolution, a state-wide facilities study was conducted, surveying the types, condition, space, and educational adequacy of Texas school buildings. Data was gathered via questionaire and use of CEFPI's 'Appraisal Guide.' Findings suggest major challenges for Texas schools during the next decade.

Creating a High School for the 21st Century
Vol: 25, Num: 5
Pg. 4-6
Stevenson, William A.
Stevenson decribes the process of planning Penn High School in Indiana. Technology was implemented in the design to create a state-of-the-art facility. The 'village' concept was used in the overall design. In addition, flexibility was a priority, to accommodate changing curriculum and teaching styles. A site plan is included.

The Multiple Bid Process
Vol: 25, Num: 5
Pg. 7-8
Kluenker, Charles
Kluenker gives an overview of the bid process in securing contractor services. Collecting multiple bids is worth the effort; it can result in significant financial savings for a school district. The construction manager coordinates the bidding process, develops work packages and eliminates subcontracting. The different required documents and procedures in the bid process are outlined.

Indoor Air Pollution as an Issue in Planning Schools
Vol: 25, Num: 5
Pg. 9-11
Tanner, C. Kenneth and Roger W. Liska
This article gives a brief historical overview of air quality policy and awareness. The authors present current information on the effects of indoor air pollution, and proposes a research methodology for studying the physical effects of indoor air pollution on student health and behavior.

Computer Use and CAD in Assisting Schools in the Creation of Facilities
Vol: 25, Num: 6
Pg. 11-17
Ashley, Dennis
CAD systems can greatly decrease the time needed to completed the school design process. Ashley outlines the usage of the CAD system for project analysis, facility checklists, and determining instructional and admininstrative space needs. This information is organized into a facility workbook for the architect's use. Numerous diagrams are included.

The Use of CAD in University Facility Planning
Vol: 25, Num: 6
Pg. 17-23
True, Joseph
True presents the VersaCAD system used by Indiana University's Architect Office. Several project drawings completed using the CAD system are included.

Potential Impact of Educational Futures on Educational Facilities
Vol: 25, Num: 6
Pg. 25-26
McInerney, William D.
Projecting social and technological changes can help us to anticipate future educational facility design needs. The CAD system encourages flexibility in facilities of the future. Technology will increase the availability of educational resources in the home, adding to the capabilities of educational facilities.

School of the Future Available Now!
Vol: 25, Num: 6
Pg. 27-29
South, Myrna
The author describes the design of Emmett Idaho High School, a school consisting of several multi-level domes. The dome design allows great savings on energy, construction and maintenance costs. The construction process is described, outlining the benefits of the dome design.

The School Building Principal and Inventory Control: A Case for Computerization
Vol: 25, Num: 6
Pg. 4-6
Stronge, James
Stronge advocates the use of computers in maintaining school building inventory records. He provides examples of computerized inventory control and discusses guidelines for selecting software.

A Survey of CAD Software
Vol: 25, Num: 6
Pg. 6-7
Sisk, Alan
CAD software can be a valuable tool for architects in drafting school building plans. Sisk offers an overview of CAD software options that may be used for school design.

Why Ask for CADD?
Vol: 25, Num: 6
Pg. 6-8
Skypeck, W. Thomas
Skypeck discusses the advantages of using CADD (computer-aided design and drafting software) in translating educational specifications into graphical representations and working drawings that may be utilized by construction and maintenance teams.

Utilizing Computer-Aided Design (CAD): A New Tool for Facilities Planning and Management
Vol: 25, Num: 6
Pg. 8-10
Beach, Robert H. and Nathan Essex
CAD software may be used for more than school design; it is also a useful tool for facilities planning and management. The authors describe their experience with learning the CAD program at the University of Alabama. They found the CAD system to be efficient, inexpensive, and relatively user-friendly.

Design Considerations for Microcomputer Laboratories
Vol: 26, Num: 1
Pg. 10-11
Lane, Maury V. and Kenneth E. Lane
The authors raise design factors to consider when planning a microcomputer laboratory, from electrical and wiring needs to storage space. Classroom configuration may depend on the location of outlets, number of computers, and teaching/learning styles.

Implications for Facility Planners at the Elementary and Secondary Level
Vol: 26, Num: 1
Pg. 11-15
McMilin, Edward
McMilin gives an detailed overview of the recommendations of several task forces formed as a result of a report 'The Governors' 1991 Report on Education.' Focusing on the task force reports for on school facilities, readiness and technology, the provided recommendations indicate future directions for educational facility planning and define a new role for state governors in education.

Urban Campus Growth and Expansion
Vol: 26, Num: 1
Pg. 12-13
Salata, Edmund J.
The author discusses the challenges of implementing a facility master plan in an urban setting - the campus of Youngstown State University. This article describes the changing campus of Youngstown State University. YSU developed a campus facility development plan in 1970 and landscape master plan in 1973. These documents have guided campus planning over the last 15+ years.

Fewer Dollars for School Facilities
Vol: 26, Num: 1
Pg. 14-15
Uerling, Donald F.
Financial data for Nebraska School District over a ten year period shows decreased spending on public school buildings. The data suggests the presence of aging school buildings in need of future renovation and new construction.

Implications for Facility Planners at the Elementary and Secondary Level
Vol: 26, Num: 1
Pg. 16-18
Spencer, Darrell
Spencer discusses recent studies identifying problems in U.S. education, and their relevance to educational facility planning. Spencer provides federal, state and district-level recommendations for improving the state of educational facilities.

Issues Related to Higher Education Facilities
Vol: 26, Num: 1
Pg. 18-19
Probasco, Jack
Probasco introduces some common problems of higher education facilities. Higher Education facilities are commonly faced with aging infrastructure, increased spatial needs due to technology, and financial difficulties.

A Master Plan for Facilities
Vol: 26, Num: 1
Pg. 20-24
Glass, Thomas
Glass maps out the phases of district planning for educational facilities. Phase 1 involves facility inventories and collection of historical, demographic, program and cost data. Phase 2 includes a physical assessment of all district school buildings and whether the facilities meet the educational program needs. Phase 3 involves an analysis of transportation patterns and resources. Phase 4 includes the development projections of future facility and educational needs. In Phase 5, at least three alternative master plans are developed. Finally, in Phase 6, a master plan is selected and implemented.

Managing Instructional Space
Vol: 26, Num: 1
Pg. 24-28
Marsh, David C.
Ohio State University is presented as a case study of a higher education institution facing classroom space defficiency. The university formed a Classroom Coordinating Council to develop solutions for this space problem. The solutions centered around creative scheduling for maximum space utilization, alternative educational delivery systems, high standards of maintenance, and prioritized renovation/construction work. Short and long-term recommendations are provided.

High Tech Schools
Vol: 26, Num: 1
Pg. 28-29
Kimball, Byron I.
Kimball provides a vision of the 'High Tech School', keeping within California guidelines. Space restrictions often make it difficult to include computer labs in a school design. Architects must often produce trade-offs for extra outlets, cabinets, etc. The facility planner may serve as the arbitrator between the school personnel and the architect, ensuring that the facility meet the educational needs in an sustainable manner. Planners must stay informed on changes in technology, and implement this knowledge during the planning phase.

A Team Approach to Preparing Educational Specifications: The Atlantic City Experience
Vol: 26, Num: 1
Pg. 31
Babineau, Raymond E. and John Falzetta
In this short summary of a mini-session presentation at CEFPI's 64th International Conference, the authors describe Atlantic City's effort to plan for two new schools and one addition, through use of consultants, district committees and school personnel.

Design Concerns for a Micro-Computer Laboratory
Vol: 26, Num: 1
Pg. 31-32
Lane, Maury and Ken Lane
In this summary of a mini-session presentation at CEFPI's 64th International Conference, the authors briefly address common concerns when designing a micro-computer laboratory, including meeting educational specifications, selecting the location of the lab, and implementing security measures.

The Vertical Urban Campus
Vol: 26, Num: 1
Pg. 33
Chaney, Darryl R.
In this summary of a mini-session presentation at CEFPI's 64th International Conference, Chaney describes the unique facility-related problems of urban institutions of higher education. Land availability and cost presents a challenge, and frequently demands high-rise construction. Access and security issues are discussed as well.

Instruction with CAD Systems at NAIT
Vol: 26, Num: 1
Pg. 34
Kerr, Bob and Willem Spaans
In this summary of a mini-session presentation at CEFPI's 64th International Conference, Northern Alberta Institute of Technology serves as a case study for design problems and solutions in constructing a CAD lab.

The Situational Ethics of Construction Management: Construction, Supervisor, Owner, and Contractor Communications
Vol: 26, Num: 1
Pg. 35
Woolbright, Thomas
In this summary of a mini-session presentation at CEFPI's 64th International Conference, Woolbright asserts the importance of clear communication regarding change orders and design changes in school construction—whether or not such change results in a monetary charge. This practice will avoid potential conflicts and ethical complications later down the line.

Selecting Design Services: A Qualification-Based Method
Vol: 26, Num: 1
Pg. 36
Nichols, David E.
In this summary of a mini-session presentation at CEFPI's 64th International Conference, Nichols describes a Colorado school district's method of architect selection based on qualifications instead of fee comparison.

Shopping for an Education
Vol: 26, Num: 1
Pg. 37
Christianson, Dennis
In this summary of a mini-session presentation at CEFPI's 64th International Conference, Christianson applies the mall concept to higher education facility design. He lists several case studies in Canada and Scandinavia.

Indoor Air Quality
Vol: 26, Num: 1
Pg. 38
Cousins, David
In this summary of a mini-session presentation at CEFPI's 64th International Conference, Cousins provides recommendations on classroom and crawlspace ventilation, as well as maintenace considerations for air-handling systems and humidifiers.

Exporting Design Technology
Vol: 26, Num: 1
Pg. 39
Standard, Marilynn and H. Edward Lilley
In this summary of a mini-session presentation at CEFPI's 64th International Conference, the authors assert the importance of integrating culture in school facility design when designing across regions/countries.

Management of HVAC Systems in School Buildings
Vol: 26, Num: 1
Pg. 39
Boehm, Michael W.
In this summary of a mini-session presentation at CEFPI's 64th International Conference, Boehm discusses the three steps to HVAC management: HVAC design analysis; installation and equipment analysis; and identification/ correction of problem areas.

Issues Related to Higher Education Facilities
Vol: 26, Num: 1
Pg. 4-5
Probasco, Jack
Probasco asserts that the facility problems faced by colleges and universities are due more to social/technological changes than to use patterns. Deteriorating physical plants and emerging technological changes create a financial challenge for institutions of higher education.

First General Session: Remarks of Governor Ted Schwinden
Vol: 26, Num: 1
Pg. 4-6
Schwinden, Ted
A transcript of Govenor Ted Schwinden's speech at CEFPI's 64th Annual International Conference is provided. Schwinden comments on the special '1991 Governors' Report on Education' in which he was a participant. He presents the conclusions of several task forces stemming from that report, and speculates on future education needs.

Second General Session: Dr. Tomorrow's Guide to Survival
Vol: 26, Num: 1
Pg. 6-7
Ogden, Frank
This article is a list of 10 suggestions to live by for tomorrow's world. The list was presented at CEFPI's 64th Annual Conference

Designing and Managing Instructional Space
Vol: 26, Num: 1
Pg. 6-9
Winicur, Daniel H.
The University of Notre Dame is presented as a case study for higher education space needs. The university was experiencing a shortage of classroom space, with its largest classroom building at 90 percent utilization during peak times. Although Notre Dame traditionally clustered classes around academic departments, the overall lack of space led to the design of a general purpose, state-of-the-art classroom building. The planning and design of the new building is discussed, including the size calculation of different types of classrooms.

Third General Session: Israel—Country Education, Schools
Vol: 26, Num: 1
Pg. 7-9
Blass, Nachum
Blass gives an overview of Israeli education and school facilities. While the Israeli student population greatly expanded after WWII, this trend ended in the 1970s. Enrollment levels must be carefully monitored, and future needs accounted for. A relatively new country, Israel has newer educational facilties, but many were poorly designed and constructed creating many maintenance problems. Social and cultural characteristics affect the educational program and policies, making integration a challenge for educational facility planners.

School Housing in California: A Multi-Billion Dollar Business Facing a Severe Funding Crisis
Vol: 26, Num: 3
Pg. 11-13
Heydt, Henry
Continuing increases in student enrollment in California place demands on state school facilities. Heydt summarizes recent legislation affecting school funding, and discusses existing funding options for meeting school facilities' needs in California.

Certification Requirements in School Facility Planning
Vol: 26, Num: 3
Pg. 15-17
Earthman, Glen I.
Student enrollments nationwide have been decreasing, yet increased numbers in some districts have necessitated new school construction. Although a staff school facility planner is an important part of any school administration, there is a serious lack of formal training or education programs to prepare one for such a position. Earthman investigated the availability of facility planning courses, and which states required such a course for certification in education administration. Earthman found that while most colleges offered a facilities course, it was rarely required. In addition, only 19 states require a school plant planning course for school administrator certification.

Proposition 2 1/2: Tax Cap Legislation & School Construction in Massachusetts
Vol: 26, Num: 3
Pg. 4-6
Calabro, John A.
Massachusetts' 'Proposition 2 1/2', approved by popular vote in 1980, states that total annual property taxes cannot exceed 2.5 percent of value. Calabro explains the effect of 'Proposition 2 1/2' on school construction finance in Massachusetts.

California Proposition 13: A Decade Later, is There a Light at the End of the Tunnel?
Vol: 26, Num: 3
Pg. 8-10
King, David
King discusses the effects of California's Proposition 13 on school facilities, as well as the establishment of revenue limits (Serrano vs. Priest) and Gann limits (Proposition 4). The Coalition for Adequate Student Housing (CASH) was formed out of a workshop held a month after the passage of Proposition 13; attendes included concerned CEFPI members and representatives from several California associations. King describes the accomplishments of CASH to date, and profiles the future needs of California's school facilities.

Can Space Motivate (or Demotivate) Science Teachers?
Vol: 26, Num: 4
Pg. 12-16
Englehardt, David F.
Englehardt presents research showing a correlation between spatial attributes and teaching methods in science teachers. He discusses findings related to laboratory design, access to specialized spaces and equipment. His conclusions have important implications for the design of school facilities and science classrooms.

Applying Interface Concepts to Facility Planning: Tucson Unified School District, Tucson, Arizona
Vol: 26, Num: 4
Pg. 17-20
Jolivet, Anna
Jolivet describes how Tucson Unified School District applied the principles of the Interface Project when developing and implementing facilities projects. The Interface Project, a research project initiated by Texas A&M University, speculated on the different ways the built environment may affect learning. Jolivet applies the six principles of the Interface Project to Tucson, and describes student, teacher and staff reactions to the new facilities.

Does the Quality of the School Environment Affect our Children's Education?
Vol: 26, Num: 4
Pg. 21-23
Christopher, Gaylaird
Christopher describes a study conducted by the American Institute of Architects, recognizing how school buildings meet educational needs. Information is collected on nominated schools related to project success from an architect and school district perspective. Site visits are conducted by an evaluation team. This study/recognition is unique in that it focuses on the effectiveness of the building in meeting the needs of the educational program rather than architectural style.

The Ecology of the Learning Environment
Vol: 26, Num: 4
Pg. 23-28
Taylor, Anne and Gene Gousie
Taylor provides a comprehensive overview of existing research on the effect of educational facilities on learning. She covers such areas as noise, color, light, and other design and spatial elements. Taylor suggests ways in which to implement this research in the design of educational facilities. She describes the School Zone Institute process of educational facility design, a method which translates program needs into design solutions. A very comprehensive reference list is included.

Interface Concepts and Special Education/Handicapped Facilities
Vol: 26, Num: 4
Pg. 29-32
Stenzler, Yale
Stenzler applies the Interface Project conclusions to special education facilities. The Interface Project found that community-centered, adaptable, behaviorally-appropriate facilities that accommodate teachers' needs and a variety of learning styles were beneficial to student learning. These characteristics are especially important when designing educational facilities for special needs.

Research and Application: Physical Environment Influences Related to Student Achievement, Health, Attendance and Behavior
Vol: 26, Num: 4
Pg. 33-34
Bowers, J. Howard and Charles W. Burkett
The authors describe a research project conducted to assess achievement levels in the oldest and newest of Tennessee County School Systems' facilities. The findings revealed significantly higher achievement scores, higher attendance, and less discipline in the modern facility.

The Interface Between Facilities and Learning
Vol: 26, Num: 4
Pg. 4-7
Hawkins, Harold L. and Betty Lightfoot Overbaugh
The Interface Project began with an interdisciplinary task force of A&M professors speculating on how student learning may be affected by the built environment. A national task force then applied these theories to building characteristics. This information was used in the study of three U.S. schools. Findings suggest that adaptable, teacher-friendly, behaviorally appropriate facilities that foster community pride, communication and a variety of learning styles enhance student learning.

Educational Facilities: Neutral with Respect to Learning and Human Performance?
Vol: 26, Num: 4
Pg. 8-12
Hathaway, Warren
Hathaway discusses perceptual, individual, program and other factors in school facilites that may affect student performance. Perceptual factors include access and spatial conditions. Individual factors can include noise, temperature, color, and physiological apects. Program factors pertain to technology, flexibility and learning styles. Other factors can include safety and building maintenance. Hathaway describes the effect these elements may have on student learning.

Computer Facilities and Computer Network at China Textile University
Vol: 26, Num: 5
Pg. 10-12
Rong, Guangyi and Yuhang Rong
The authors present China Textile University as a case study for Chinese school computer facilities and network systems. The network allows access to several databases containing student records, research and teaching resources. CTU has 3882 undergraduate students and 384 graduate students, with 118 computer terminals. Utilizing a network to connect different departments will allow maximum use of limited resources. A descriptive outline of CTU's computer resources is provided.

Designing School Facilities Cross-Culturally: Preserving Ethnic Heritage
Vol: 26, Num: 5
Pg. 13-16
Stanard, Marilynn and H. Edward Lilley
Drawing on a case study in West Africa, Stanard and Lilley demonstrate the importance of preserving cultural heritage when designing educational facilities. Planners should consider the climate, the physical/geographic environment and the cultural/social/political/economic environment in which they are building. Site visits and extensive work with client groups are necessary to gain the knowledge needed to design a facility for another culture.

Design Bivouac: A Way to Strengthen Facility Planning
Vol: 26, Num: 5
Pg. 18-19
Cochran, Glen and Donald A. Wahl
A technique for solving building project problems is presented. This technique, a 'Design Bivouac', utilizes an on-site design team to 'camp' at the facility for several days to observe facility needs and create design solutions.

Benefits of International Cooperative Efforts in Educational Facility Planning
Vol: 26, Num: 5
Pg. 4-6
Earthman, Glen I.
Earthman discusses the knowledge learned at a recent International Congress on Educational Facilities held in Jerusalem. He asserts the importance of sharing knowledge internationally, and advocates the development of an international experiential training program for educational facilit planners.

Planning of School Buildings and Problems of Meeting Educational Needs in Saudi Arabia
Vol: 26, Num: 5
Pg. 6-9
Al-Mannie, Mohamed A.
Al-Mannie gives a brief history of education in Saudi Arabia during the 20th Century. The number of students and school buildings have greatly increased over recent years. Oil revenues have helped this development. However, the design quality and services of the school buildings are often inadequate. Saudi Arabia's school facilities are either owned (built under the Ministry of Education) or rented (pre-existing buildings). Design decisions for owned facilities originate from the Ministry of Education, producing standardized designs that are merely adjusted for size. The respective prototypes for elementary and secondary schools are presented. Al-Mannie asserts that the prototype designs are not meeting the educational programs of schools, due to their inflexibilty and lack of non-classroom space. In addition, many lack electricity, water, air conditioning, and proper furnishings. While Saudi Arabian education has improved in general, this development must extend to producing quality facilities.

Technology and Education: Designing Educational Facilities to Avoid Premature Obsolescence
Vol: 26, Num: 6
Pg. 13-17
Hathaway, Warren, E.
Hathaway emphasizes the importance of designing facilities flexible enough to meet future needs. These needs may be social as well as educational in nature. Educational facilities should embody the qualities identified by the Interface Project as enhancing learning. Under this umbrella, Hathaway discusses specific aspects of school design, such as technology (including educational delivery and facility management), energy efficiency, community use and partnerships, and disaster planning.

Planning Tomorrow's Schools: Eight Trends to Shape School Design
Vol: 26, Num: 6
Pg. 4-6
Brubaker, C. William
Brubaker discusses eight trends for designing educational facilities for the 1990's. Some of the trends he identifies include: adaptable space, media centers, energy conservation, and regional architecture.

The Integration of Programming and Educational Specifications
Vol: 26, Num: 6
Pg. 9-12
Affleck, Kristen and Brian Fuller
This article provides an overview of the architectural programming process. Programming or 'problem seeking' (whereas design is 'problem solving') has three levels: master planning, schematic design and design development. Decisions made during the programming process may have the most significant impact on the finished structure, with the lowest cost. Steps and considerations in the programming process are discussed. The authors also briefly cover the development of educational specifications, and how they relate to the work of the architectural programmer.

Ten New Megatrends as we Approach the Year 2000
Vol: 27, Num: 1
Pg. 04-07
Naisbitt, John
This article, written in 1987, outlines ten trends preceded by an introduction reminding the reader that the year 2000 is only 13 years away. The megatrends we should consider as we move into the 90's may be summarized as follows: 1) There will be a renaissance in the arts, literature, and spirituality as people deal with the onslaught of technology, 2) An information-based economy will be a high-energy economy, 3) Decline of the cities—creation of satellite centers around cities—smart buildings—smart cities—workers living further from their work, 4) Simultaneous globalization and individualization of the electronic media will help fashion us into a global family, 5) The re-invention of management and the workplace (manager as facilitator), 6) The end of the welfare state and the death of socialism, 7) English emerging as the first truly universal language, 8) There are no limits to growth (the resources needed for an information economy are self-generating), 9) The Pacific Rim is where the future lies, 10) We are slowly moving toward world-wide free trade—a truly interdependent global economy is the surest road to lasting world peace.

'An Educational Quality Culture' - Quality Demands and Educational Practices in the 21st Century
Vol: 27, Num: 1
Pg. 08
Dygert, Charles B., Ph.D.
Traditional bureaucratic and autocratic management styles are being replaced with 'people-enhanced' styles that tend to stimulate human self-value, personal development, and feelings of being capable. The overall 'teamwork' theme pictures competition as a negative force among human entities and destructive to effective 'Individual Quality Development.' Competition with others, therefore, should be replaced with teamwork, cooperative endeavor, and 'people-enhanced' management styles.

The Future of Facility Management
Vol: 27, Num: 1
Pg. 09-14
Rondeau, Edmond P., AIA, CSI
Facility Management has evolved and is continuing to develop as a required process practiced by organizations to provide management services to meet corporate strategic long-range and short-term business requirements. Facility Management is the business practice of planning, organizing and controlling productive work environments. Historically, corporate management has been mostly concerned with product, service and income. More recently the concept of 'Asset Management' has evolved and attention is being given to the cost of acquiring, running, and managing the workplace. 'Facility Management has moved from the Boiler Room to the Board Room' and facility managers must become leaders and risk takers.

10 Trends For Future Educational Design
Vol: 27, Num: 1
Pg. 15
Christopher, Gaylaird, AIA
The 10 trends discussed may be summarized as follows: 1. There is a growing understanding of the relationship between a quality educational environment and the success of the educational program, 2. The increasing availability of technology enhances teaching potential, 3. The information explsion requires an interconnected educational world, 4. Tomorrow's environments will be designed for specific tasks and activities while being flexible enough to adapt to future changes at minimal costs, 5. Residents are looking for schools to become an important part of the community, 6. Participatory design is becoming more common, 7. Teacher work spaces are being designed with more regard for the teacher as a professional, 8. Future schools must accommodate a wide range of users, 9. Future environments will need to accommodate different learning styles, 10. A heightened appreciation of the arts will require facilities that can accommodate those related programs.

Growth — Blessing or Headache
Vol: 27, Num: 1
Pg. 15
Damm, Jim
Growth can be positive, negative, or fluid. Positive growth will require more student stations. Negative growth may require closing schools. Fluid growth is movement between areas of overall stability. Many variables must be considered and many solutions used.

Construction Program Management for Educational Facilities Programs and Progects — Twelve Steps to Success
Vol: 27, Num: 1
Pg. 16-17
Powell, Marvin
Although there is no narrative (the article is presented in outline form), the twelve steps listed define the various phases of construction management pointing the way to successful completion of a project. Finally, a thirteenth item (also in outline form) summarizes the advantages of construction program management as follows: 'Construction Program Management assures success of the program and progect in terms of: Quality and Value; Schedule Control; Cost Control. But also: Better Definitions; Better Owner Decision; Better Team Communications; Better Documentation; Efficient, Smooth flowing process which minimizes reversals and unnecessary conflicts. The result - A BETTER PRODUCT!'

Asbestos, The Law
Vol: 27, Num: 1
Pg. 18-21
McGovern, Matthew, PE
Because of its unique physical properties, asbestcs has had a myriad of commercial uses between the 1920's and 1970's. Since 1970 an awareness has developed regarding medical problems (notably lung cancer) associated with asbestos exposure. Such exposure has been regulated by the Occupational Safety & Health Administration since 1971. In 1979 the Asbestos Hazardous Emergency Response Act was passed to identify friable asbestos in schools. This act, known as AHERA, was amended in 1982 and again in 1987 strengthening requirements imposed upon states to develop programs for testing, sampling, abatement and training/ accreditation of inspectors, planners, engineers, architects, etc., because they were excluded from coverage by the insurance industry. 'The whole subject of asbestos is in many cases overwhelming and at times appears to be a waste of limited funding, but who can say our next generaton is not worth the effort. In either case, asbestos could turn that super investment into a loser.'

College and University Planning and Design — The State of the Art
Vol: 27, Num: 1
Pg. 21-22
Brubaker, Bill
American colleges and universities can be proud of their accomplishments in planning and design. Various factors influencing planning and design can be categorized as follows: Our Heritage; Community Character; Economic Development; Culture; The Campus Plan; The Compact Plan; Architecture and Open Space; Energy Conservation; Flexibility; Roof Design; Innovative Structures and High Tech; Great Spaces; Urban Campuses; Special Facilities; Housing; New Teaching and Learning Methods; Continuing Education; Community Colleges; Additions and Renovations; Regional Character.

Acoustical and Audiovisual Design Considerations
Vol: 27, Num: 1
Pg. 22
Paoletti, Dennis A., AIA
A good listening environment maximizes speech intelligibility and is achieved with properly balanced reverberation time, the use of appropriate materials and the control of unwanted noise and vibration from HVAC sources. Audio-visual design criteria takes into account location of screen projection, methods of sound reproduction, and appropriate control systems enhancing the transfer of knowledge in educational facilities.

Space Planning Guidelines For Elementary and Secondary Schools in the U.S. and Canada
Vol: 27, Num: 1
Pg. 22-23
Bruss, Lyle R.
A 1988 survey with 40 states and five Canadian provinces responding showed that a wide range of space recommendations exists. The results were reported by room types, per pupil space, and by grade levels. For example, Kindergarten rooms ranged from 20 square feet per pupil to 63 square feet per pupil, and from 600 square feet per room to 1575 square feet per room. The wide range may be partially attributed to the lack of any standardization in forms among the states. The report raises the question as to whether further studies of space recommendations could be of benefit.

Program Management
Vol: 27, Num: 1
Pg. 23
Fuller, Brian F.
This article (in outline form) presents a list of major issues and problems facing school districts with suggested approaches to solving these problems, and concludes with this description of Program Management: 'Complete Management of all Phases of all Projects in a Program Including: Procedure Control; Schedule Control; Cost Control; Financial Control; Quality Control.'

Projecting Educational Programs and Planning Educational Facilities
Vol: 27, Num: 1
Pg. 24-27
Babineau, Raymond E., Ed.D.
Educational planners have long known there is a relationship between the facility and the educational program. This article reviews how the planner can examine: (1) societal trends and their relationship to education, (2) trends in school curriculum, (3) trends in instruction, (4) trends in educational technology, and relate the implications of these trends to future educational facility needs. Specific trends in each of the four areas mentioned are identified and discussed. The point is made that trends in curriculum and instruction emanating from societal trends send key signals to planners in terms of characteristics required if the future facility is to be viable. The future facility, or more properly the educational environment, rather than reflecting only the implications of known short-term trends should also reflect more universal characteristics so that the environment can be: Inviting; Affirming; Aesthetic; Flexible; Healthful; Intelligent. The article concludes with a discussion of each of the above characteristics.

Management Concerns Pertinent to Facility Planning for Independent and Religiously Affiliated Schools
Vol: 27, Num: 1
Pg. 27-28
Engelhardt, David, Ed.D.
Planners of non-public schools need to consider certain aspects that public schools do not. To compete in the market place non-public schools need to offer perceived superiority in programs and services. Marketing concerns often lead to specialized facilities, variable scheduling, and specialized courses and programs.

Effects of Physical and School Environment on Students and Faculty
Vol: 27, Num: 1
Pg. 28-29
Bowers, J. Howard, Charles W. Burkett
This article reports on a research study that was conducted to determine if the physical environment of the school was related to student achievement, attendance, behavior, and self-concept. Two schools, one modern facility and one older facility, in one school system in Upper East Tennessee were used in the study. Data was analyzed using ANOVA and t-tests. Differences in socioeconomic levels of the students tested in Grades Five and Seven were taken into consideration. In all hypotheses there was found to be significant differences between the effects of the modern school and the older school. Students in the modern facility scored higher in achievement, had better attendance, fewer incidences of disciplinary action, and higher self-concepts as measured on the Piers-Harris Children's Self-Concept scale.

Alternative Construction Contract Approaches
Vol: 27, Num: 1
Pg. 29-31
Cross, Donald R.
As school construction projects become more complex, new and more sophisticated management approaches are being used. This article describes five construction delivery approaches, lists the advantages and disadvantages of each, and also lists other factors to be considered in deciding which approach to use. The five delivery approaches are: 1. Traditional Design/Bid/Construction (General Contractor) - Open Bid. 2. Traditional Design/Bid/Construction (General Contractor) - Select Bid List. 3. Design Build Team. 4. Construction Management. 5. Construction Manager/General Contractor. The educational facility planner needs to be aware of construction contracting delivery approaches available to determine which approach is best suited to local needs.

Convertible School Pilot Project
Vol: 27, Num: 1
Pg. 31-32
Le, Hoang D.
Student mobility and declining enrollments during the 1960's and 1970's in Alberta caused rural and city centre schools to empty while new suburban schools were overcrowded. A continuation of this cycle can be expected to bring about low enrollment in these new suburban schools in 15 to 20 years. In response to this problem, Alberta implemented a pilot project to study the feasibility of developing and constructing a convertible school that could serve alternative purposes if and when its enrollment declined to the point where it was no longer needed to serve its original purpose. The resulting elementary core school was designed to be easily converted to a community-use facility containing senior citizen apartments and related amenities (see diagram on Page 32). Members of the community have expressed support for the project which will be reviewed in 1995 to assess the need for the school's continued operation or conversion.

Management Information Control Systems for Educational Facility Construction Programs
Vol: 27, Num: 1
Pg. 33-34
Halverson, Walter S.
Heery's Management Information Control System uses the latest advances in database management, program integration, and artificial intelligence to add control of information to a standard reporting process. Heery's program matches itself to the level of expertise of the user by prompting the user with questions to determine the user's level of expertise, then it responds accordingly. This is a system that 'learns' by incorporating problem-solving characteristics of previous situations with those of new situations. This system adds the decision-prompting controls needed to ensure the successful completion of both major and minor construction projects.

Programs for K-12 Capital Outlay: The Need for a National Investigation of State Programs, Descriptors, and Support Patterns
Vol: 27, Num: 1
Pg. 34-35
Westbrook, Kathleen C.
In a 1988 study by the Institute for Educational Leadership, teachers and administrators ranked adequacy of the physical plant as the most important factor in the teaching environment. We know adequate facilities are necessary for the achievement of successful educational programs, and although we are constantly reminded by business leaders that the educational system should be training leaders for tomorrow's technological society, we continue to carry on in yesterday's inadequate facilities. There is a real need for reform in capital provision for school facilities, but there can be no effective reform when each district fights the battle alone. There is a need for a national databank for management, collection, and analysis of information relevant to improvement of the physical environment. CEFPI endorsed such an initiative at the Annual Conference in Milwaukee in October, 1988.

A New Approach to Selecting Architects
Vol: 27, Num: 1
Pg. 35-37
Moore, Dick
A business-like and thorough architect selection procedure makes a formidable task easier and also serves as a feedback mechanism for architects seeking to improve their marketing approach. The selection procedure begins with the advertisement which should clearly specify the selection criteria and ask the architect to request a copy of the district's goals, programs, etc. The next step is the rating of the architect's qualifications based on information submitted in response to questions asked. After initial paper screening, formal interviews are conducted by the selection committee. After initial paper screening, formal interviews are conducted by the selection committee. The importance of asking the right questions and guiding the architect to provide information wanted is stressed so that 'choreography (does not) overshadow content.' Examples are given. This hint also applies to informal interviews by the Board, who has the final decision and must understand how the final candidates were selected.

Distance Education: Grande Prairie School District
Vol: 27, Num: 1
Pg. 38-38
Edgar, B.J.
Alberta Education, Digital Equipment Corporation, and Computer Based Training Systems, networked twelve high schools together with the Alberta Correspondence Schools as a distance learning project. To meet student needs, self-contained, media-oriented learning/teaching packages had to be developed. To support the instructional process, each school is equipped with teleconferencing equipment and a facsimile system with the capability of adding a telebroadcasting system. This project has given smaller, remote schools an opportunity to experience a range of programs that are equivalent to those offered in the larger urban jurisdictions.

A Growing Concern for School Buildings
Vol: 27, Num: 2
Pg. 04-06
Honeyman, David S.
Rapid deterioration of school buildings at elementary and secondary levels, universal problem with difficult financial concerns to be resolved. Safety factors must be considered. Reliance on passage of bond issues as a sole source of capital outlay creates increased inability to keep buildings safe and accessible to special populations of students. Often the most needy district is the one with the least ability to finance maintenance. School facilities can affect learning when there is a lack of space, leaking roofs, and unrepaired vandalism. Students and teachers are entitled to clean, well-maintained, adequate space in order to learn and teach. If hospitals can be closed for failure to maintain standards and if prisoners can be released from over-crowded, poorly maintained prisons, states and accreditation agencies should establish and enforce acceptable rules for school facilities.

State Plans For Financing School Construction
Vol: 27, Num: 2
Pg. 07-08
Wood, R. Craig
Current (1989-90) school construction costs are: $6,849 per pupil for elementary; $8,456 per pupil for middle; $10,333 per pupil for secondary. Neither the state nor the school district can bear full burden of cost alone. State financial aid plans for educational facilities vary from no aid to full funding (see overview chart on Page 8). The changing educational needs requires retrofitting and renovation as well as new construction.

Financing Facilities: A Perilous Legal Path for the Future
Vol: 27, Num: 2
Pg. 09-11
Thompson, David C.
Court decisions of the past 15 years clearly indicate that future financing of facilities will grow even more critical in the next 10 to 20 years. The contention that facilities and educational outcomes are inter-dependent gains momentum each year. Court attitudes are changing toward the realization that buildings and how they are constructed have a major impact on educational outcomes. Furthermore, the courts are moving toward the concept of equal access for all students (both physical and educational outcomes access). State financial aid is inevitable and is increasingly a focal point and concern of the courts as well as the public.

Equity, Adequacy, Efficiency — What Should They Mean to Facility Planners?
Vol: 27, Num: 2
Pg. 13-15
Westbrook, Kathleen C.
Equity, adequacy and efficiency mean different things to architects than to educators. It is the burden of the facility planner to establish for the two (and for the public) a common understanding and acceptance of the goals and criteria that these three words imply for a given project. Cost efficiency versus education goals are achieved only by careful planning and mutual acceptance of differences.

Financing Capital Improvements in 2001 and Beyond
Vol: 27, Num: 2
Pg. 16-18
Ward, James Gordon
Demographic changes between elementary, secondary, and college populations along with increasing scarcity of entry job opportunities call for a different philosophical approach to methods of financing educational capital improvements. Demographic changes will not be uniform in their geographical occurrences and state data may mask significant changes in specific school districts thus complicating the task of making productive recommendations by school districts, educators and facility planners. Complicating the matter further, the increasing minority population, will have a greater socio-economic range than at present, thus assumptions of specific special needs are very difficult to make. 'Baby boomers' provide a large mature work force; young entrants to work force will be fewer. The mature, employed citizenry must see school facilities planning as an investment in the future.

Facility Planners and Policy Development
Vol: 27, Num: 2
Pg. 19-21
Stewart, G. Kent
Either states and school districts learn how to use well-qualified facility planners or the courts will issue decisions on educating students based on far less cogent considerations and far greater unwieldy outcomes. Adequacy of capital improvement policy depends largely on how well facility experts communicate with state level educational and political policy makers. Perhaps CEFPI as a professional organization should be first to lead the way in this major and crucial activity.

The Role of the State Department of Education in Planning School Facilities
Vol: 27, Num: 3
Pg. 04-06
Earthman, Glen I.
Education in America has always been the responsibility of each state, whereas, in other nations it is a national responsibility. Financial support for education has, and will continue to be, a state responsibility in America. As programs continue to be mandated, facilities will be required to house the students in the varied programs including special needs. Financial support will be necessary from the State Departments of Education which will require state supervision via specific codes, legislation and federal laws such as the Elementary & Secondary Act of 1965. Court decisions favoring the concept of equal education for all states continue to add to the expanding responsibility of State Departments of Education.

State Education Agencies: Planning Requirements
Vol: 27, Num: 3
Pg. 07-09
Stenzler, Yale
States recognize the importance of planning for educational facilities as can be seen in the requirements of four states; California, Florida, Maryland and Washington. School districts in their states must fulfill these requirements in order to qualify for state approval of plans, and for financial support. In addition these states provide leadership, specific materials and instruction to enable school districts to plan, assuring reasonable uniformity in the resulting facilities throughout the specific state.

State Education Agencies Facility Planning Services in North Carolina
Vol: 27, Num: 3
Pg. 10-12
Spencer, Darrell
The passage of bond issues in 1949, 1953, 1963, and 1973 increased the staff of the Division of Schoolhouse Planning in North Carolina and led to the passage of The School Facilities Finance Act of 1987. The North Carolina Division of School Planning, 25 members plus 11 staff, in the Division of Plant Operation which offered services in areas of school maintenance, operations and custodial services. The Division of School Planning conducts surveys to determine school system organization and to ask questions that cut across all of the Division's services thus utilizing their expertise. Combined with all these services is the plan review process by which the Division of Schoolhouse Planning is able to make viable recommendations for renovations, additions, closings, consolidations, and new schools.

Research and Application: Non-Traditional Instructional Space
Vol: 27, Num: 3
Pg. 12-15
Rydeen, James E., AIA
Whether a facility is a traditional or open-space classroom design, there is an impact upon learning and behavior when students feel ownership, a sense of belonging, and comfort. School size, space and density, climate, lighting, acoustics and color play major roles in learning and in behavioral reactions of both students and teachers. When students feel welcome (impact of color, compact openness) vandalism and graffiti are minimized.

Standards as Insurers of Quality
Vol: 27, Num: 4
Pg. 04-05
Stewart, G. Kent
In a perfect world we wouldn't need standards, but the social, economic, and political system impacting the process of school planning and construction is anything but ideal. If planners, who have the expertise do not develop standards, legislatures and the courts will. The result may be too restrictive and too expensive. Standards are necessary, not as restrictions, but as safeguards or insurers of quality facilities that will support educational programs.

Space Planning Guidelines for Elementary and Secondary Schools in the U.S. and Canada
Vol: 27, Num: 4
Pg. 06-08
Bruss, Lyle R.
Few guidelines exist to help people calculate program needs into space requirements. This article reports on a study of all State Departments of Education in the U.S. and Canada in regard to their space recommendations for elementary and high schools. Results show little agreement among respondents regarding amount of space provided on a per student or per room basis for any given room type. (See chart, p. 8) The implication is that a space classification system would be useful to educators, architects, and the public, and that departments of education appear to be the logical providers of this information.

The Impact Educational Facilities Have on the Integration of Handicapped Students
Vol: 27, Num: 4
Pg. 09-11
Sokol, Gerry R.
This paper discusses the location and design of Special Education classrooms in the regular school. It is pointed out that Special Education classrooms should not be isolated, but should be located where the school routine encourages contact between handicapped and non-handicapped students. Design should not draw adverse attention, but should cause students to notice little difference between rooms for the handicapped and the non-handicapped. The theme of the article is that the most beneficial educational environment for the handicapped is in a setting that is age-appropriate and non-handicapped.

Future Facility Forecasting
Vol: 27, Num: 5
Pg. 04-08
Coleman, Donald G.
Planning schools for the future in a period of rapid change is very difficult. Current trends are taking us down the road of 'high tech'; prediction here is complicated by international economic competition, population growth, technology and productivity, and resources and pollution, all of which may impose limits on human activity. Balancing needs with resources may shape what is called an 'appropriate technology' society. The resultant 'managed' society will affect how and where schools are built and will encourage alternative methods of education.

Designing Facilities to Incorporate Distance Education: An Interview With Dr. Thomas Knight, Center, Pennsylvania
Vol: 27, Num: 5
Pg. 09-13
Stanard, Marilynn, Ph.D.
New technology is providing increased educational opportunities in distance learning, allowing teachers to send live instruction via airwaves or telephone lines to students in other geographic locations. Because this is a growing field, planners can be expected to be called upon to design an increasing number of facilities to accommodate distance learning. In this article Dr. Thomas Knight, Assistant Superintendent of Beth Center School District in Pennsylvania, explains how his district became involved with a distance learning system, how the system operates, and how facilities were retrofitted to house the equipmint needed. He describes activities of sending and receiving by the teachers and students, and he discusses planning considerations for heat, light, sound and space.

Planning Considerations for the Communication Infrastructures of Schools
Vol: 27, Num: 5
Pg. 14-17
Maughan, George R., Jr.
School management and administration, is changing as a result of computerization and information distribution. The process of handling information, both within the school and in networking in the larger environment, is creating a growing demand for communication system studies. Spatial requirements and activity area analyses must be reconceptualized. Various levels of communication infrastructure analysis is described with the conclusion that technical-based communication systems have become an essential part of the overall texture of the school. This requires planners to investigate the overall integration of communication systems in schools as a major component of educational specifications.

Using Electronic Mail Networks in Facility Planning
Vol: 27, Num: 5
Pg. 18-19
Lilley, Ed and Mr. Terry Dangler
This article provides information related to the use of communication processes such as Bitnet and Suranet (networks to send electronic mail, transfer files, or provide an electronic forum for group discussions). It describes how such communication processes can assist the educational planner in staying current, with quick and easy access to the latest trends and techniques. A Facilities and Services discussion group (FACSER) has been in operation since 1988 at West Virginia University. Anyone interested in participating may contact the Assistant Vice President, Facilities and Services, West Virginia University, 886 Chestnut Ridge Road, Morgantown, WV 26506 or phone (304)293-7202.

The Interactive Television Classroom
Vol: 27, Num: 5
Pg. 20
Gunther, Robert J.
The article discusses the merits of single-use space (a dedicated classroom) when a district becomes involved in a network of interactive television for distance learning. The distance learning classroom should be devoted solely to its intended purpose and, even if vacant at times, should not be used for other purposes. Recommendations are made as to size, location, security, interior adaptations, and equipment.

The Impact of Technology on Educational Facilities
Vol: 27, Num: 6
Pg. 04-06
Brubaker, C. William, FAIA
Technology is changing the way we plan, design and build schools; it is making a significant impact on the learning environment and on methods of teaching. This article reviews some of the 'current and near-future' impacts of technology on educational facilities. The increasing capabilities of technology are helping the school become more a part of the community and helping the educational process become more integrated with daily life. The electronics of information processing and networking will increase the possibilities for individual and independent learning to forge links between home, school, and community. This will impact the size and location of schools. Small satellite learning centers will be related to a larger centralized school hub. This hub will be a community school designed to serve all citizens and becoming the educational, cultural and recreational center for all ages.

Project RE-THINK! Reinventing Education Through Transformation, Hope, Individualization, New Approaches, Kindling
Vol: 27, Num: 6
Pg. 06-16
The Pennsylvania Partnership for Innovation in Education
The premise is that today's educational methods use a 'zero-based' problem solving model. This model's primary emphasis is based on a question posed by John Naisbitt in 'Reinventing the Corporation': 'What would education look like if it were invented for the first time, today?' The article describes the model and the approach to be used in Project RE-THINK and concludes with a project timeline running from 1989 to 1992.

FACILITIES PLANNING — a catalyst for educational technology restructuring
Vol: 27, Num: 6
Pg. 17-19
Hill, Franklin, Ph.D.
'Facility Planning can and should be a catalyst for restructuring education for technology' ....'A well designed school can (and maybe should) be a catalyst for educational change.' The accomplishment of these stated goals is realized when curriculum and facility planning staff work together. The facility planner is the key link between teachers and architect. To effectively bridge the gap between curriculum and design, the facility planner must understand curriculum and be able to communicate with the architect and engineer. A school renovation project in Snoqualmie Valley, Washington, is used as a case study of how facility planning can be an agent for change.

Basic Elements of Computer Networking for Facilities Managers and Planners
Vol: 27, Num: 6
Pg. 20-24
Abbott, Robert, Charles Brennan and Paul Quick
This article provides a good introduction to computer networking. It begins with a brief history of computing and networking, and describes the components of various systems, their physical connections and structures; compares local area networks; and, discusses facilities consideration in planning, implementing and expanding local area networks. Tables and diagrams are used as illustrations.

Facility Design for Transient Populations and Reuse
Vol: 27, Num: 6
Pg. 25-27
Wilson, Stanley E. and James R. Schneider
Faced with growing enrollment in parts of the county and vacant schools in other areas, the Board of Education in Queen Anne's County, Maryland, considered various solutions (on a master plan basis) to provide facilities that would meet both future population growth and decline. The solution was a mixture of expansion of existing core facilities, construction of new core facilities designed for re-use for other purposes, and the extensive use of relocatable classrooms.

Pennsylvania's Telecommunications Classrooms: Considerations for Planners
Vol: 27, Num: 6
Pg. 28-29
Stanard, Marilynn and Robert Horner
This is the second article (Vol. 27, No. 5 first article) describing Pennsylvania's 'Teleteaching Project'. Satellite Educational Resources Consortium (SERC) is the newest initiative in Pennsylvania's distance learning system with 50 schools participating and with a broadcast audience of 400 school districts in the United States. The article provides information on funding, equipment, cost, and makes recommendations concerning planning considerations. Distance education programs are clearly part of a national and international trend in educational delivery. Planners need to work closely with school district officials and teachers in designing facilities which will enhance this new educational technology.

Wolves at the Schoolhouse Door
Vol: 28, Num: 1
Pg. 04-05
Walker, Lisa J.
The study by the Education Writers Association based on a survey of school building construction and maintenance in the states of California, Maryland, New Jersey, South Carolina, Texas, West Virginia, and Wisconsin, plus a review of other recent studies, shows that more than 25% of schools in use today are inadequate in terms of space, safety, maintenance needs, and suitability for learning. The responsibility for building and maintaining schools has always been considered a local one. A few states do provide assistance, but the average state contribution to building and maintenance is only 23%, while state contributions to education programs is more than 50% . The apparent lack of concern for school buildings pervades our society. We have failed to adopt financial and planning policies which allow responsible investments in our school buildings partly because the buildings are less interesting than the children they serve. It is easier to defer attention to buildings than to children or teachers. Changes are necessary, however, if we are to meet the burgeoning need for new construction and backlogged maintenance and face up to our responsibility to ensure children the right to attend school in a safe and inviting educational environment that provides incentives to learn.

Relocatable Classroom Buildings — Are They a Solution?
Vol: 28, Num: 1
Pg. 05-06
Rehmer, Harold W.
The use of relocatables in the rapidly growing Lake Washington School District in Kirkland, Washington, is described in terms of the major reasons for use; criteria for selection; location; and major advantages and disadvantages. It is concluded that relocatable classrooms can be a viable, but not a simple, solution to facility needs. They provide flexibility, can be cost effective and time saving, but require advance planning. Also care must be taken in adding portables not to overload existing core facilities. While the use of relocatables may appear 'reactive', in actuality their use can be part of a 'pro-active' plan to effectively manage enrollment growth.

Using a Vision-Driven Paradigm for Strategic Planning Related to School Facilities
Vol: 28, Num: 1
Pg. 06
Kowalski, Theodore J.
Prevailing approaches to strategic planning are based upon traditional assumptions that the organizational environment is stable with little effect on organizational initiatives; that the organization knows its needs, clearly defines its goals and has identified the steps to take to achieve those goals. Vision-driven planning offers an alternative for long-range goal-setting. Rather than embracing specific goals, vision-driven planning forecasts multiple potentialities and solutions—and provides an annual review mechanism for refining the planning outputs.

'Look, He's Got His Foot in His Mouth'
Vol: 28, Num: 1
Pg. 07-09
Pacini, Martha Abbott
Planning, organizing, supporting and delivering your message effectively in presentations requires planning, organization and practice. Know your audience, your speaking environment and your objectives; organize your information into categories, eliminate less than vital points, use evidence to support your points; select and use audio-visual aids; control verbal and body language during presentations through practice; and handle question and answer sessions and the conclusion. These are the components of a successful presentation. With these suggestions in mind as you prepare for your next presentation, perhaps you can avoid feeling as if people are saying, 'Look, he's got his foot in his mouth.'

Why a Clean Fish is Needed to Conduct a School Facilities Survey in the State of Florida
Vol: 28, Num: 1
Pg. 09
Wright, Baxter B., Ph.D.
FISH (Florida Inventory of School Houses) is an outgrowth of legislation, first enacted in 1959, requiring each school in the state to have periodic school plant surveys of building needs in its district. Prerequisite to projecting school building needs is an accurate assessment of current (existing) buildings. The state assists districts in the survey process.

Trend in Higher Education: A Facility Planner's Response
Vol: 28, Num: 1
Pg. 10-11
Montgomery, Daniel A.
Trends in Higher Education at the University of Virginia are listed and discussed. There is an increased interest in preserving and making better use of older facilities with a focus on upgrading of existing facilities. Research efforts are increasing and multi-disciplinary programs are replacing traditional academic departmental organization. Facility decision-making is becoming more participatory while regulations and funding demand more administrative time. Facility design is reflecting simultaneous needs of both large group and individual needs with a stronger emphasis on outcomes and less on techniques and process. There is an increased interest in the development of smart buildings and an enhanced use of computer assisted analysis and management information.

Open Enrollment — Impact on Facility Planning
Vol: 28, Num: 1
Pg. 11
Penny, Thomas
The 'choice' options related to open enrollment present additional planning challenges for public schools. The experiences in Minnesota and Iowa indicate that the potential impact of open enrollment is as significant to the planning of elementary school facilities as it is to middle or high school facilities. Although the intent of open enrollment legislation is to improve the quality of public education, recent experience suggests that options for school-related activities and adequate facilities to provide activity programs may be more important in 'choice' decisions than specific academic goals. Due to the many variables that exist, it is unlikely that rigid planning criteria can be developed to respond to the challenges of open enrollment.

Visualizing Change Before It Occurs
Vol: 28, Num: 1
Pg. 12
Dover, Victor B.
Drawbacks to the traditional design method occur when time-consuming renderings and models are presented prematurely to laypersons resulting in acceptance or rejection of projects based on looks alone. A Computer Assisted Design (CAD) program developed by Image Network, Inc. provides 'before and after' simulations going far beyond the original reality. Images stored in the computer can be of help to planners, citizens, elected officials — all who have a stake in the project.

Capital Improvement Planning: Practical Tips From A Superintendent
Vol: 28, Num: 1
Pg. 17-18
Davis, E.E. (Gene), Ed.D.
The components and related planning assumptions of a capital improvement planning process are described as beginning with enrollment projections, moving on to determination of existing program capacity, making a comparison of one with the other, then evaluating/analyzing data, establishing standards, developing educational specifications, weighing alternatives and finally recommending an action plan for financing and implementation.

Concordia/MIT Symposium on Education
Vol: 28, Num: 1
Pg. 19
Bingler, Steven, AIA
Capital construction projects throughout much of the country are proceeding without benefit of research needed to insure that the billions spent will result in educational facilities that fully support changing needs of education for the future. A parallel is seen here with similar expedient short-term strategies in private enterprise that reduced research and development budgets to a minimum, reduced innovation, and brought corporate America down in the 1970's. Expediency is often our worst enemy; yet we continue to react in a rush to put roofs over the heads of students rather than addressing the challenge of quality design based on research and development commensurate with the magnitude of the problem. A small group of architects and educators is searching for answers and has identified issues like high-tech information systems, community access, cooperative learning, experiental teaching, and changing demographics that impact classroom structure. This is but the tip of the iceberg. A concerted effort is needed to develop new directions for facilities planning.

California's 'School's for the 21st Century'
Vol: 28, Num: 1
Pg. 20
Williams, Robert D., Ed.D.
The California State Department of Education is preparing a comprehensive long-range planning guide as an aid to local school districts. The thought-provoking document will contain forward-thinking school design concepts to be considered by districts when planning schools for today that will last far into the 21st Century. The document will address teaching/learning methodologies, innovative technology, flexibility in architectural design, and enhanced community use of facilities. The 'Schools for the 21st Century' document reminds architects and planners of the ever-present relationship between function and space and points out that new trends may require new concepts in design.

Tilt-Up Concrete Construction for Educational Facilities: A Design-Build Case-Study
Vol: 28, Num: 1
Pg. 21
Kaufman, Anders J., AIA
The Ben Lippen School in South Carolina, designed by Architectural Engineering Associates, Inc., demonstrates that tilt-up concrete construction, a previously utilitarian method, has significant application for the design and construction of educational facilities. The multiple requirements of economy, construction schedule, durability and maintenance make tilt-up concrete design and construction most attractive. Coupled with the design-build delivery system even greater speed of construction and additional economy may be achieved. In this case a 54,000 square foot complex was built for $2,600,000 in a total time period of 12 months.

Design Evolution — Ecole Secondaire Beaumont Composite High School
Vol: 28, Num: 1
Pg. 22-23
Bole, John, M.Ed. and Morley Workun, FRAIC
The new Ecole Secondaire Beaumont Composite High School has become the pride and joy of Beaumont, Alberta. Aside from its aesthetic attributes, the school offers both English and French academic streams. The latest in technology is available to serve the students well into the next century. In addition to basic core academic subjects, the curriculum offers fine arts, science, and industrial arts, all supported by a state-of-the-art library. Complete physical education facilities round out this comprehensive high school.

Agency Construction Management: A School District's Perspective
Vol: 28, Num: 1
Pg. 24
Weinery, Ronald A., DPA
This article reports on the results of a study conducted to test whether the agency form of construction management was more advantageous to public school systems than general contracting in terms of cost effectiveness, timely project completion, and improved quality of the finished product. The study found that agency construction management contributed positively in the areas mentioned and it is recommended that this method of construction be given consideration as a viable alternative when building new schools.

Dade County Public School Construction Program
Vol: 28, Num: 1
Pg. 25-26
Damm, Jim and Richard J. Polo
In response to enormous growth, a 1.565 billion dollar program was undertaken to build 49 new schools and remodel 256 additional learning centers in Dade county. A joint venture between CRSS Construction of Houston and William-Russell & Johnson of Atlanta accomplished this enormous task. The project was divided into two phases, organizational and implementation. Deliverables for the program include: construction market assessment, budget and schedule control, management systems, assignment of project managers, design programs, procedures manuals, project directory, management reports and FF&E catalogs. The procedure manuals were developed for each phase of project delivery, pre-design through close-out, and incorporated such areas as A/E selection, design review, inspections and value engineering. At the time of this presentation, work was ahead of schedule.

Designing Schools for Year Round Education
Vol: 28, Num: 1
Pg. 26-27
Christopherson, E. Jay, AIA
This presentation describes the Year Round School concept and how its use has led to the recognition of a need for specially designed facilities. The author studied year round schools and tested various concepts in design and function. His solutions include new ideas related to teacher planning centers; teacher preparation and work rooms; instructional technology laboratories; media centers; administrative areas; and, energy conservation.

Relocatable Classrooms: Schools Get What They Pay For
Vol: 28, Num: 3
Pg. 04-05
Pon, Kathy
This article discusses the guidelines under which portable classrooms (relocatables) may be used in California. California guidelines are unique in that the state provides financial assistance for the leasing of portables manufactured according to state specifications and purchased by the state for lease back to school districts. At the same time, the state establishes a series of regulations for portable construction and use. The portable classroom seems to offer flexibility to meet growth at a reasonable cost; yet, cutting corners or making hasty decisions in the procurement of these facilities can be costly, in the end.

Building Functional Schools: Mobility, Viability, and Flexibility
Vol: 28, Num: 3
Pg. 06-08
Buchanan, Floyd, Rosemary Papalewis, and Lindsay Roberts
This article considers the pros and cons of pre-fabricated versus built-in-place portables as used in California's state program, where 30% of all new classrooms must be portable. It is noted that pre-fabricated portables cost about 50% of what built-in-place portables cost, but may not be as well constructed. Regardless of type, portables can be integrated into the campus design and can look attractive and be functional.

Miguel Hidalgo Elementary: A Relocatable School
Vol: 28, Num: 3
Pg. 08-10
Adams, Beverly J., Ross S. Bernay and Tanis D. DeRuosi
This article outlines the process followed by Fresno (CA) Unified School District in creating a complete relocatable school in six months, and the possible future use of the school as it relates to the district's master plan. Advantages and disadvantages of an entirely relocatable school are listed while cautioning not to allow a temporary school to become a permanent solution.

Portables and School Reform: The Urban Context
Vol: 28, Num: 3
Pg. 11-12
Miron, Louis F.
This article cites two cases from the Orleans Parish highlighting the use of portables and the many chronic problems caused by overcrowded and inadequate school facilities. In Louisiana, a well-intended state reform to reduce class size and reduce pupil-teacher ratio compounded the space issue, increased the use of portables and forced redistribution of scarce resources to fall inequitably on already weaker schools in the system. Reform efforts in both relatively affluent magnet schools and under-financed inner city schools stand to lose as a result of the problems brought on by use of classroom portables and other temporary measures to alleviate a well-intended, but poorly thought-out state 'reform'.

Portable/Relocatable Classrooms: A User's Point of View
Vol: 28, Num: 3
Pg. 13-16
Heise, Bonnie L. and Jeffrey Bottoms
The proliferation in the use of portable classrooms prompted a research study focused on gaining information through a survey on portables as they compare to permanent buildings from a user's point of view. The study surveyed 128 teachers working in California's San Joaquin Valley who were currently teaching, or previously had taught, in both permanent and portable classrooms. Comparisons of satisfaction were made on 19 characteristics including such elements as size, lighting, window placement, noise level, safety, maintenance, location, etc. While levels of satisfaction varied among individual characteristics, overall results showed 15% of the respondents expressing more satisfaction with portables, 48% expressing the same satisfaction as with permanent classrooms, and 37% expressing less satisfaction with portables. Some of the negative comments had to do with lack of seating flexibility due to shape of classroom and location of chalkboards; window placement; bounciness of floors; isolation on campus; and maintenance. Security was another concern. (Most of the portables in this survey were less than 10 years old. It is known that the maintenance curve increases rapidly after 15 years. Comments showed more dissatisfaction with older portables.) Survey results indicate many valid concerns in areas of safety and security, along with factors that affect educational effectiveness. It is suggested that builder/manufacturer and school district would be well-advised to study these issues further.

History Repeats Itself: Another Look at Relocatables
Vol: 28, Num: 3
Pg. 17-19
Bache, Randal and Caroline Edwards
This article gives a comprehensive, overall view of portable classrooms beginning with historical background. It discusses different types of portable construction and configuration (relocatables on concrete slab, for example); costs of purchase; leasing; hook-up; moving; expected life-span; and general advantages and disadvantages. There is a description of California specifications designed to guide one through the acquisition and approval process in California.

Educational Facilities Administration, Management and Scholarships in Korea: A View of 'The Concept of Mulicultural Educational Facilities'
Vol: 28, Num: 4
Pg. 04-08
Ryu, Hyang San
School buildings are receptacles of educational activities to enable students and teachers to create new ideas from the curriculae. School buildings exert more influence on the development of national manpower than do general buildings; yet, school facilities in Korea traditionally have been built with little thought to the 'fit' between curriculum and space. Consequently, there is a disharmony between the educational program and the facility acting as a deterrent to teaching and learning. This article discusses the reasons for this disharmony and stresses the need to develop a concept in Korea of the relationship between facilities and program and ways to make the facility more supportive of the program. Teachers and students should be able to send recommendations to authorities to improve educational facilities. Such is not the case in Korea. Among recommendations for improvement are empowerment of the users of buildings to provide insight in the design and integration of school planning with overall comprehensive urban planning.

European and German Efforts to Meet the Challenge of New Technology Education
Vol: 28, Num: 4
Pg. 08-13
Tuschinski, Melita G., M.A.
A comparative study done in 1988 by the Center for Educational Research and Innovation (CERI) analyzing European national strategies and procedures for dealing with new technology in education has shown that technological development has outstripped knowledge of its use. Throughout Europe national experience has shown a need for effective educational programs to promote the use of new technology in education. Described in the article is the German model which differs from the French and British ones as the goal is not only to introduce computer classes and courses, but to use technology as media in teaching and study at all education levels. Also included is a section on design specifications for a computer 'working-place' at school. In spite of the emphasis on computer literacy at all levels, priority at the elementary level will still be given to the classical cultural techniques of reading, arithmetic and writing. Also running as a theme in the article is the part that new technology can play in the re-unification of a divided Germany.

At Home in the Elementary Schoool
Vol: 28, Num: 4
Pg. 14-17
Hurt, Jane
Research recently completed at the Department of Architecture, University of Nottingham, England, has asked these research questions: (1) what effect does the built environment have on the manner in which teachers and children utilize their teaching areas?; (2) what role does the teacher have on how children feel in their space?; (3) did architects over-zealously design openness where a more enclosed environment would have served as well?; (4) has the openness of American schools contributed to the seeming aimlessness and lack of control amongst our children?; and (5) can the physical environment be part of the problem? After comparing openness in British and American schools and after discussing societal trends and changes, educational goals, and teaching methods, the author concludes that there has been a conservative swing back to traditional teaching as evidenced, for example, by the 'walling in' of open-space classrooms. The author believes the demise of progressive education is explained by the fact that the progressive curricula and teaching methods which focus upon the freedom of the individual to explore learning activities set out in an open environment cannot exist in a society where self-discipline is no longer a valued aspect of child rearing. It is suggested that a better understanding of the role of the wall in the school is needed and further study is Warranted on issues of supervision.

A Workable School Construction Plan for Boards and Administrators
Vol: 28, Num: 4
Pg. 17-20
Bishop, Harold L.
One of the most oft-recurring problem related to new construction is the failure to plan adequately for the project. This usually causes a loss of credibility of the board, superintendent and the entire community. Adequate planning must follow a logical order which takes into consideration the readiness of the taxpayer to finance the project, the involvement of the correct staff and legal expertise, the establishment of a well defined schedule and a very close monitoring process. These considerations are discussed in detail with the conclusion that careful planning, timing and cooperation will result in public affirmation and support.

Physical Environment and the School Counselor
Vol: 28, Num: 4
Pg. 20-22
Cole, Claire G.
This article cites several research papers and examines the physical environment of the counseling office which point to the following design implications: (1) informal office arrangements seem more conducive to effective counselor/client interaction; (2) privacy is important not only within the office itself, but also for the entrance/exit of the office; (3) color and music can have an effect; (4) a 'soft' architectural environment is more inviting to counselors than is a 'hard' environment. Further research is suggested to answer questions regarding : (1) best location in the building for the counseling office; (2) effect of music (and type of music) on counselor/student relationship; (3) type of best counseling facility according to grade level and whether counseling is for group or personal problems; (5) size of office; and (6) design implications of trends in type of counseling (i.e., family, personal, career) and changes in counselor roles. As educators design new buildings and renovate older ones, they should consider how physical environment affects the delivery of counseling services, and plan accordingly.

College Learning Assistance Center Design Considerations
Vol: 28, Num: 4
Pg. 22-25
White, William G., Jr., Barney Kyzer and Kenneth E. Lane
Because institutions of higher education are increasingly receiving students with academic deficiencies, many institutions are implementing special programs to assist students in developing and improving skills necessary for success in their college programs. These remedial programs have grown to such an extent that special facilities are being developed on many college campuses. These so-called Learning Assistance Centers require specific planning considerations. Presented in this article are specifications for such centers regarding location on campus, space requirements, equipment and furnishings, and different types of support spaces needed. Planning for the college learning assistance center is not only a serious challenge but a unique opportunity to plan a space that can positively contribute to the performance of both staff and students.

Space Utilization Efficiencies in Secondary Schools
Vol: 28, Num: 4
Pg. 26-27
Williams, L.D.
Public expectation of excellence from our schools with minimal financial support seems to be saying that the educational system must re-allocate its resources and somehow improve the quality of its product. One way to do this is the efficient use of school buildings. The two primary causes of inefficient space utilization are: (1) the use of instructional space for non-instructional purposes; and (2) the use of over-sized spaces for low enrollment courses. It is suggested that these inefficiencies can be reduced by scheduling changes and by manipulating a closer fit between class size enrollment and room size. It is important, however, to weigh space utilization efficiency improvements against any effects the changes may have on delivery of the educational program.

Psychological Aspects of Classroom Planning
Vol: 28, Num: 5
Pg. 04-06
White, Ernest K.
It is generally accepted that the physical environment has a psychological impact on teachers and students; and consequently, on teaching and learning. For example, shape, size, arrangement and decor of the room can be inviting or repulsive and can affect communication, sight and hearing. A carefully designed classroom includes specific elements to maximize learning and minimize those factors that are detrimental to health and comfort. Elements to be considered include spatial relationships, climate control, visual and acoustical environments including colors (walls, floors, etc.). Spatial relationships vis a' vis student/student and student/teacher need to consider 'individual' space requirements versus 'personal', 'intimate' or 'social space'. Climate control should include humidity, heat and cooling, and ventilation systems to remove odors and generated body heat. Unwanted noise stemming from mechanical systems and room to room transmitted noise can be eliminated by careful planning. Lighting includes controlled illumination, natural lighting and glare control. Surface finish and colors not only affect psychological attitude, but significantly alleviate or worsen glare as a cause of fatigue and poor learning environment. Properly designed instructional space is essential to any learning environment. Those who are involved in classroom management and design should be aware of the psychological aspects of the physical environment and consider them at every opportunity.

Adding Art Humanity to the Campus
Vol: 28, Num: 5
Pg. 06-10
Wilson, Robert D.
If there is any place where Art should be a part of our daily living experiences it should be within our colleges and universities; yet, art work is not an integral part of campus planning and development. A need exists to plan, program, design and execute works of art and humanity on college and university campuses. In this article, art work is considered in its traditional sense. Humanity on campus refers to enhancement of the campus grounds to permit physical amenities that add to life beyond basic necessities. This includes landscaping, architecture, water, pathways to encourage private contemplation and conversational gatherings between classes. Thus a discussion of art programs and art on campus includes the foregoing viewpoint. With a clear understanding of the specific institutions's goal, history, aspirations and who it serves, one can organize, analyze and implement an art program in much the same way as any other program goal. A good art program includes the acquisition and display of art objects (painting, statuary, etc.)

Preserving Historical Campus Structures
Vol: 28, Num: 5
Pg. 11-13
Howe, Barbara J.
Historic preservation, properly planned and maintained, can provide a valuable framework for campus planning while enhancing the college's understanding of its own history. Historic preservation is simply systematic protection from desecration or deterioration of the nation's significant building, sites and structures. It is preservation for a purpose. Preservation is an on-going part of the facilities planning team's mission for a college or university. West Virginia University provides a case study of campus planning for historic preservation.

Designing for Safety
Vol: 28, Num: 5
Pg. 14-15
Marshall, George, CSP, PE
Safety must be considered in all phases of the design process. Safety engineering is as technical as any other in the design process and highly regulated. Facility planning teams should enlist the aid of safety consultants to help eliminate potential hazards and problems such as a 'tight building syndrome' or 'sick building syndrome'. The HVAC system, air balance, new materials, building maintenance projects and water quality are all areas that require careful analysis in new or renovative projects. Educational and municipal laboratories have special needs for chemical fume hoods (to contain and eliminate harmful gases) and air exchange systems. The electrical system must have safeguards against fires, and the water system should safeguard against backflow problems while at the same time avoid contaminating the water system source.

Videotaping Interviews for Selection of Project Consultants
Vol: 28, Num: 5
Pg. 16-17
Anderson, Eric E., AIA
The program of videotaping interviews permits greater flexibility for institutional participants; encourages consulting firms to streamline and focus presentations for the interview committee; permits committee to review specific points when determining most qualified firm to manage project delivery for capital planning and development. This article defines and identifies specific tasks to consider in setting up videotaping interviews. Videotaping gives a permanent record of interviews for easy and accurate referral; reduces or eliminates need for 'further information' type interviews; provides an accurate answer if committee's decisions are challenged. (See Figure 1, Page 17).

Financial Management of Higher Education Facilities Maintenance
Vol: 28, Num: 5
Pg. 18-21
Ingle, Al
While new construction is highly visible and receives greater public acceptance, long-term maintenance of facilities (especially 'preventive' maintenance) is rarely understood. Custodial and repair requirements, power and heat generation, etc. are prolific dollar absorbers and prime targets for 'cutbacks' in times of limited financial resources. This article analyzes the budgetary approaches used at the university level (e.g., 'line item', 'program', 'zero-base'), expenditure control for maintenance, and the basic output measures that identify methods of determining quality and performance.

Public School Choice: Are We Moving Too Fast?
Vol: 28, Num: 6
Pg. 04-06
Clement, Donald N.
Parental choice of school may or may not enhance educational opportunities for their children. This article reviews the perceived pro's and con's of the value (or harm) of public school choice; the political and economic impact; the balance and imbalance of school populations including both students and teachers in ethnic and in program considerations. The article includes references to studies already completed relative to school choice.

Parent Choice — A Changing Face In Milwaukee
Vol: 28, Num: 6
Pg. 07-10
McMilin, Edward
This article reviews the choices offered to parents by the school system in its efforts to abide by court decisions to desegregate the Milwaukee schools. These choices included Student Assignment and Chapter 220 (state legislation that encourages desegregation between districts and within a district. It is unique in that both the sending district and the receiving district received state aid credit for students participating in the program). The choice process, after 15 years, has proven effective in meeting the goals as prescribed by the courts, but has raised deep concerns outside of their original intent. The court settlement agreement expired on June 30, 1993. (For facility planning concerns, see author's article in the Educational Planner, July/August 1986, Facilities Impact of desegregation 'The Milwaukee Experience'). One experience learned by the approach used in Milwaukee is that the quality of the schools facilities will be equated to the quality of the program.

School Facilities and the State Mechanism Created by 'Kera' Which Support School Construction
Vol: 28, Num: 6
Pg. 11-12
Barwick, Woody J.
KERA (Kentucky Education Reform Act) was a response to the Kentucky Supreme Court ruling in 1990. KERA gave an opportunity to the 177 school districts to levy a $0.05 tax rate for new schools, major renovations, or debt service. Historically, Kentucky's rural schools have been inadequately and inequitably financed resulting in aging buildings, inadequate equipment and poor teaching facilities. KERA paved the way for two funding plans: SEEK (Support Educational Excellence in Kentucky) with a $0.30 levy and KEA (Kentucky Facility Support) with a $0.05 eligibility levy locally. This levy gives eligibility to participate in Kentucky School Facilities Construction Commission and the KFS equalization funds. Many states are looking at Kentucky now as a model.

On Public Schools of Choice: A Conversation With Seymour Fliegel
Vol: 28, Num: 6
Pg. 13-17
Brandt, Ron
Seymour Fliegel was Director of Alternative Schools and Deputy Superintendent of New York City's District Four in the 1970's and 1980's. He created a district-wide free choice plan and a nationally recognized network of 24 alternative concept schools. The article summarizes some of his arguments on the merits of choice along with some suggestions in which schools can implement such program. Basic to Fliegel's approach is the belief that we do not all learn the say way.

Capital Improvement Planning: Practical Tips From a Superintendent
Vol: 28, Num: 6
Pg. 17-19
Davis, E.E. (Gene), Ed.D.
The capital improvement process, if broken into individual components and taken one step at a time, can result in a successful program that will generate internal and external support. Components include enrollment projections, demographics, program capacity (pupil/teacher ratios, curriculum offerings, spaces). Next, evaluation/analysis process which 'Will include literature research, school system's priorities for instructional delivery, analysis of membership/program and environmental conditions. Planning assumptions and criteria, alternatives available, and an action plan and criteria complete the first phase. Making appropriate local planning assumptions cannot be underestimated. They include, but are not limited to, six areas; current/projected program standards; program capacity analysis; economic conditions of locality; student reassignment options; existing buildings under-utilized; and planning criteria for action. Finally, allow three full months for a bond campaign. Appropriate levels of broad-based community support and a well-researched capital improvement plan to back up the request should assure an excellent chance for voter approval.

Effect of Architecture on Education
Vol: 29, Num: 1
Pg. 10-12
Christopher, Gaylaird
Christopher explores the effect of school buildings on education. Although a quality building cannot make up for a poor curriculum, an exceptional environment can improve a program's implementation and inspire its users to perform better. Any school building design should be an extension of its educational program, and create an environmentally friendly environment for students and teachers.

The Dual School
Vol: 29, Num: 1
Pg. 13
Bordwell, Raymond and Joseph V. Regano
In this short presentation abstract, an overview is provided of the planning and design of a new dual elementary and middle school building.

Capital Asset Management Program: A New Approach to Management of Land, Buildings and Equipment
Vol: 29, Num: 1
Pg. 13-14
Lehr, Ernest
A Capital Asset Management Program goes beyond facility planning and maintenance to include long term decision making on district land, buildings and equipment. An outline of the components of such a program is provided.

The Role of the Project/Program Manager
Vol: 29, Num: 1
Pg. 15-17
Raubacher, Charlie
Raubacher discusses the role of the project manager. The project manager is responsible for time, cost and quality management of the construction project, from pre-design to post-construction. The project manager must attempt to meet the clients' needs within the existing budget and timeline, and ensure the successful completion of the project. The project manager's many responsibilities throughout the planning and construction process are discussed.

Planning an Award-Winning School
Vol: 29, Num: 1
Pg. 17-18
Brubaker, C. William
Brubaker presents his experience working in conjunction with another architectural firm in planning and designing Capital High School in Santa Fe, New Mexico. The shared responsibilities of the two firms during the planning process are described, including program refinement, site selection, and design. The project won an AIA Honor Award.

How Florida's Changing Demographics Will Impact Upon the Future Design of State Educational Facilities
Vol: 29, Num: 1
Pg. 19-21
Wright, Baxter B.
Wright speculates about the effect of Florida's changing population on its educational facilities. Florida's student population is expected to become increasingly diverse in terms of age, race/ethnicity and family background. Projected enrollment levels are expected to steadily increase. Florida has attempted to meet these demographic challenges through the use of special task forces and a growth management law.

After the Glow Wears Off—What Do You Do! A Management Plan
Vol: 29, Num: 1
Pg. 22-25
Danielson, Jon J.
Danielson presents the elements of a successful project management plan. The selected project team identifies the project needs, develops the program, and sets a reasonable budget. Lines of communication must be established between the project team and the school board and administrators. District design and maintenance standards should be established. Reports should be kept to document the project (sample reports are provided).

Functions of the Classroom's Walls, Ceilings, Floors, Windows and Doors
Vol: 29, Num: 1
Pg. 26-29
Ryu, Hyang San
Ryu demonstrates the potential for flexibility in the location and function of walls, ceilings, floors, windows and doors—structures commonly thought of as stationary. These structures can be used creatively to enhance the educational program and facilitate the implementation of technology in an educational space.

Facilities Management Systems for Educational Institutions: 'An Overview'
Vol: 29, Num: 1
Pg. 29-31
Charlebois, Dennis and W. Paul Kelty
An outline of the 'Facilities Management System (FMS)' is provided. FMS is an automated system for facility management. FMS creates a safer environment through alarm management, air quality monitoring, and security control. The system also tracks maintenance scheduling and repairs and keeps historical data on developing conditions. Furthermore, FMS can reduce energy consumption through HVAC and electrical control.

A Planning Guide for School Music Facilities
Vol: 29, Num: 1
Pg. 31-33
Wenger, Kari
The environment of the music suite is critical to student learning; the acoustics of the space can either help or inhibit students' ability to discern differences in sound tone and tempo, and develop critical listening skills. In addition, a music suite has unique space and shape needs that are different from tradional educational spaces. Wenger discusses the special requirements of a well-designed music suite, and why they are important to student learning.

The Integrated Planning Process
Vol: 29, Num: 1
Pg. 34-35
Mount, Sharon K.
Mount provides an overview of the planning process, including the planning team. She identifies five planning phases, including: the project launch; data collection/analysis; development of facility options; evaluation of facility options; and plan adoption. An organized planning process contributes to an instituion's resources and enhances departmental communication.

California's 'Schools for the 21st Century' Project
Vol: 29, Num: 1
Pg. 35
Williams, Robert D.
This very brief article describes California's 'Schools for the 21st Century' report, in progress. The document will describe cutting-edge school design elements for implementation by school districts.

Community Based Facility Planning
Vol: 29, Num: 1
Pg. 4
Gardner, Dwayne E.
This short essay discusses the advantages of grassroots planning for educational facilities, rather than the traditional top-down approach.

Restructuring Education—Restructuring Facilities
Vol: 29, Num: 1
Pg. 5-10
Babineau, Raymond E.
Babineau presents an overview of the skills that will be important for success of future students. He includes tables listing future trends for school management, teachers, curriculum, instructional practice, and evaluation. He discusses the implications of these trends on educational facility planning.

Public Opinion Polling—A Rationale
Vol: 29, Num: 3
Pg. 11-12
Highbarger, Kay
Highbarger recommends that school districts utilize public opinion polling to assess community attitudes regarding education. Polling can be a mechanism of commuication between the community and district, and result in increased public support.

Participatory Facilities Planning in an Urban School District
Vol: 29, Num: 3
Pg. 14-16
Stevenson, Kenneth R. and Glenn Stiegman
This article provides a case study for inclusive educational facility planning. Greenville County School District in South Carolina implemented a comprehensive facility planning program that involved parents, educators and community members as committee members and special consultants. The advantages of participatory planning are examined.

How We Did It...
Vol: 29, Num: 3
Pg. 16-22
Ballard, Ron E., Cleary, William R., Heim, John, Lauer, Von C., Sellon, Paul D. and Norris Wika
Six Kansas superintendents describe how their districts successfully passed school bond referendums. Each superintendent describes the unique challenges they faced when attempting to pass their referendum, and how they overcame these challenges. A consistent theme is the use of participatory planning techniques.

Tennessee Small Counties Systems v. Govenor McWherter et. al. Case Number 88-1912-il Chancery Court, Davidson County, Tennessee
Vol: 29, Num: 3
Pg. 23
CEFPI
A brief overview of this case is provided. The case concerns the issue of equalized funding for school districts in Tennessee. At the time this article was written, a decision had not yet been reached.

Basic Data for Referendum Planning
Vol: 29, Num: 3
Pg. 4-5
Stewart, G. Kent
When trying to pass a referendum, many districts wait too long before involving the community—often resulting in a failed referendum! Knowing the characteristics of your community, and using public reference groups as resources in the planning process will result in increased public understanding and confidence.

Architects Don't Build Schools—Communities Do!
Vol: 29, Num: 3
Pg. 6-8
Terril, Sandra J.
Terril stresses the importance of community involvement in school facility planning and selling the bond referendum. Districts can involve their community by establishing Community Facilities Task Forces, conducting community attitudinal surveys, and evaluating the socio/economic/political climate of the surrounding community. Involving the community gives the project credibility. Specific suggestions for selling the bond referendum are also provided.

The Care and Feeding of Citizen Advisory Committees
Vol: 29, Num: 3
Pg. 9-10
Mulvenon, Steve
A citizen advisory committee (CAC) can be a valuable asset when trying to pass a bond referendum, if kept on track. Mulvenon discusses factors to consider when selecting committee members, and speculates on the characteristics of a successful committee.

The School Board Must Adopt a Policy and Approve Rules and Regulations to Avoid Pitfalls When Dealing With New Construction
Vol: 29, Num: 4
Pg. 12-17
Herman, Jerry
Herman presents a model for school boards creating policy on school construction. The model includes four phases: Determining Needs; Facilities Planning; Facilities Construction; and Facilties Operation. Comprehensive outlines and checklists are provided.

Makers of the Dream: Designing Culturally Sensitive Schools
Vol: 29, Num: 4
Pg. 20-24
Stanard, Marilynn
Stanard asserts that the nostalgia over the 'little red schoolhouse' is not due to its design, but rather the feeling of community characteristic of that time. Facilities of today can be educationally innovative while still retaining that sense of community and local culture. Stanard presents several case studies of how school districts integrated cultural elements in their school designs.

Schools for the 21st Century: General Specifications
Vol: 29, Num: 4
Pg. 25-30
Hathaway, W.E.
Hathaway provides a comprehensive view of the form and function of school facilities. A general set educational specifications is provided, based on educational trends, student feedback, and planning principles.

Planning for the Avoidance of Roof Problems in Educational Facilities: A Study of Roof Complications and Roof Types
Vol: 29, Num: 4
Pg. 4-8
Taylor, Kenneth C. and Douglas T. Bennett
Taylor and Bennett conducted research on roof type reliability. Their findings provide valuable information to school districts making roofing decisions. The researchers sent a Comprehensive Roof Survey (CRS) to each of Georgia's 186 school districts (information on 61% of Georgia's school buildings was received). The instrument assesed roof type, slope, performance, and maintenance. The researchers discuss their results, and provide recommendations for school districts. Tables and references included.

Determining School District Renovation/Remodeling/Repair Needs
Vol: 29, Num: 4
Pg. 9-11
MacKenzie, Donald G. and Paul Phillips
The authors describe a survey instrument utilized by St. Lucie County Public Schools in Florida to evaluate the condition and maintenance needs of their school buildings. The instrument allowed the district to assess the individual needs of each building and prioritize renovations and repairs.

Public School Infrastructure in Maryland: Looking Back and the View Ahead
Vol: 29, Num: 5
Pg. 12-14
Stenzler, Yale
The State of Maryland has historically provided strong finacial support for its educational facilities. The State Public School Construction Program, created in 1971, provides significant funding for construction, renovation, and additions to school buildings, allowing local school districts to devote their financial resources to the educational program and staffing. Funding procedures are described. Each school in the state is required to submit a Comprehensive Maintenance Report annually for review; consequently, over 80 percent of schools are consistently rated as 'good' or 'very good.' Implications for the future are discussed, based on enrollment projections and the age of existing infrastructure.

City School Buildings Revisited
Vol: 29, Num: 5
Pg. 15-17
Carlin, Philip M.
Carlin briefly profiles various older school buildings in major cities, and evaluates the relevance of their design to current practices. Space per pupil has increased over the last 20 years. As our infrastructure continues to age, safety concerns increase. New uses for existing buildings must be explored.

Is Anybody There?? Does Anybody Care??
Vol: 29, Num: 5
Pg. 17-19
Westbrook, Kathleen C.
Westbrook provides an overview of capital improvement financing of school buildings in Illinois. The condition of Illinois school facilities is deteriorating. Westbrook offers recommendations on actions Illinois school districts could take to better maintain and improve their educational facilities.

We Build for Kids: The Education of School Facilities Planners in California
Vol: 29, Num: 5
Pg. 4-6
Santo, Daniel, Lois Stansel, Sue Teele, and Kent Van Gelder
This article discusses the unique conditions educational facilty planners face in California, where increasing enrollment levels are placing demands on old and outdated facilities. The authors discuss the training and resources available to California educational facility planners.

The Condition of the Infrastructure of New York Schools: Who Pays and Who Benefits?
Vol: 29, Num: 5
Pg. 7-8
Crampton, Faith E.
School facilities are a capital investment that must be preserved through routine maintenance. Deferred maintenance costs more in the long run, as failure to repair or replace building features can result in greater structural damage later. School districts must be informed of the need to allocate adequate funding for routine maintenance.

The School Building Authority of West Virginia: Striving for Equity and Efficiency Through State Funding
Vol: 29, Num: 5
Pg. 9-11
Williams, Clacy E. and David A. Sneed
Established in 1989, the School Building Authority is a mechanism for monitoring and equalizing West Virginia's school facilities. The SBA issues statewide, net enrollment, and needs grants, using state funds. Counties are required to produce a Comprehensive Educational Facilities Plan (CEFP), to prioritize funding. An overview of the funding process is provided.

School Facilities—From Elemental to Exemplary
Vol: 29, Num: 6
Pg. 12-16
Witcher, Ann
Witcher provides a detailed historical account of school design trends since the nineteenth century. She draws comparisons between the past and the present of school facility design, and speculates on future trends. A comprehensive reference list is included.

Large School/Small School Issue: Georgia Schools
Vol: 29, Num: 6
Pg. 17-24
McGuffey, C.W.
This article is a review of research conducted on school size in Georgia, including state/regional studies, dissertations, and journal articles. Topics covered include the benefits and drawbacks of large vs. small schools; school costs related to size; and program quality and student achievement in schools of different size. References are included.

Enrollment Projections—Factors and Methods
Vol: 29, Num: 6
Pg. 25-30
Glass, Thomas E. and Connie L. Fulmer
The authors provide a detailed description of the factors affecting student enrollment. Methods of demographic data collection for the purpose of projecting school enrollment are presented.

Financing of School Facilities—Impact of Reform in Kentucky
Vol: 29, Num: 6
Pg. 31-33
Prickett, R.L.
Education reform has an indirect effect on the educational facility; as the educational program changes, the facility must also change to meet its needs. Kentucky is presented as a case study of how education reform policy affects state educational facilities. The author includes a detailed outline of how Kentucky's school facilities are financed, and the different agencies involved.

The Study of School Facility Planning—Unimportant to Educational Administration Programs?
Vol: 29, Num: 6
Pg. 34-37
Glass, Thomas
While courses in educational facility planning are being dropped from graduate educational administration programs, our school facilities are in crisis. With a limited number of planning professionals available, school administrators will increasingly be responsible for leading building planning and maintenance efforts. Educational facility planning courses address many issues not covered in general education administration classes. The author covers some of the facility-related skills/knowledge that administrators should possess, including demographics and facility assessment information, among other things.

Hancock et al vs. Stephan et al, Case No. 90-CV-1795
Vol: 29, Num: 6
Pg. 38
Stewart, Kent
This article is a short summary of a facility equity case in Kansas, where 40 school districts challenged the state method of distributing aid to schools. At the time of publication, a decision on this case had not yet been reached.

Strategic Planning—Definition, Process, and Outcomes
Vol: 29, Num: 6
Pg. 4-7
Stewart, G. Kent and Gerald D. Bailey
The authors provide a comprehensive overview of the concept of 'strategic planning.' 'Strategic planning' refers to the dynamic process by which organizational resources are matched with existing opportunities and goals. The implications of the strategic planning process to educational facility planners are discussed.

New School Planning—What Do We Really Believe?
Vol: 29, Num: 6
Pg. 8-11
Lane, Kenneth E.
Lane provides a thoughtful overview of the often overlooked aspects of planning and designing a new educational facility. A school district facility appraisal should preceed the design of a new facility. In addition, the planning process must go beyond the completion of the facility to include a comprehensive operations plan and a staff development program.

Computerized Educational Specifications
Vol: 30, Num: 1
Pg. 14-15
Lilley, Ed
Lilley discusses the difficulties education admininstrators often have when writing educational specifications, and how computers can help. Lilley's presents his spreadsheet program as a way to write ed specs easily.

The Genesis Concept: Two Testaments
Vol: 30, Num: 1
Pg. 16-17
Gross, Clifford J.
This seminar synopsis presents the 'genesis' concept in education — the creation of an education center servicing an entire district using CADD technology.

Educational Facilities-Across Frontiers
Vol: 30, Num: 1
Pg. 18-20
Yelland, Richard
This seminar synopsis presents an overview of international mega-trends in education, such as demographic, organizational, and economic changes, and their impact on the future of educational facility design, planning and management.

Changing Patterns of Post-Secondary Education
Vol: 30, Num: 1
Pg. 26-31
Harrison, D.J.
In this transcipt of his seminar presentation, Harrison provides an overview of how changes in post-secondary education will likely impact facility planning and design. Harrison discusses changes in enrollments, demography, the U.S. work force, corporate organization, technology, and finance, and makes conclusions regarding future conditions under which facility planning will occur. He concludes by making predictions and recommendations.

The Georgia Department of Education Facilities Capital Outlay Program
Vol: 30, Num: 1
Pg. 33-34
Thornhill, Donald D.
This brief summary of a mini-session presentation describes Georgia's state program for funding educational facilities. The program requires all school systems to develop a local facilities plan for yearly evaluation. Facility needs are established annually, and systems may apply for state funds. A table summarizing program action from 1981-1992 is included.

BETA Project-Statewide Assessment of School Facilities in Texas
Vol: 30, Num: 1
Pg. 34-35
Clement, Jerry
In a short summary of his mini-session presentation, Clement describes the Building and Educational Technology Assessment (BETA) project. This statewide assessment of Texas schools included visual inspection, measurement, and comprehensive physical evaluation. Preliminary findings are summarized.

Homeowner Association Operating Cost Protocol and School District Capital Asset Management Programs
Vol: 30, Num: 1
Pg. 36
Lehr, Ernest
In this brief summary of his mini-session presentation, Lehr emphasizes how schools must set aside funds for anticipated maintenance costs. Lehr points to homeowner associations as a model for maintenance asset management.

Enrollment Projection Practices in Georgia Public Schools
Vol: 30, Num: 1
Pg. 37
Chan, T.C.
In this brief summary of his mini-session presentation, Chan presents findings from a survey regarding enrollment projection methods used by Georgia Public Schools. Enrollment projection was typically used for staffing, budgeting, and facility planning, among other things.

Using Citizens Committees to Assist in Referendum Campaigns
Vol: 30, Num: 1
Pg. 37
Stewart, G. Kent
In this brief summary of his mini-session, Stewart presents the advantages of involving citizen committees in referendum campaigns, and areas in which they can be involved.

Education for the Future of America
Vol: 30, Num: 1
Pg. 4-7
Rogers, Werner
In this transcript of his opening general session speech at the 68th Annual International Conference, Werner emphasizes the importance of educational facilities, and discusses Georgia's school facility program.

Planning a Prototype Middle School: A Case Study
Vol: 30, Num: 1
Pg. 40-42
Pittillo, Robert A.
Pittilo presents a case-study design of a middle school. He describes the planning process, from selecting a site, to developing ed specs, to presenting the models. Pittilo emphasizes the importance of collaboration and consensus building. The architectural firm met weekly with the advisory committee to review the planning process. Floor plans and a detailed overview of the facility is included.

New Modular Capabilities Mean Quality, Flexibility in Schools Planned for Tomorrow
Vol: 30, Num: 1
Pg. 43-44
Nye, Robert
Nye describes the many advantages of utilizing modular construction for classroom space. Modular classrooms can be as permanent as any school building, and can save in time and construction costs. Nye recommends school districts take another look at modular construction when planning their schools.

Shared Decision Making in Facility Planning & Management
Vol: 30, Num: 1
Pg. 44-49
Cyr, Frank, James Keller and Dennis Kuretich
Site based decision making is an operational philosophy which places the responsibility for decision making in the hands of those most closely affected by the decisions. Several dimensions of site based decision making (SBDM) are discussed in detail, including within a team setting, between collegues, and among separate administrative units. In addition to increasing staff morale and teamwork, SBDM gives staff the opportunity to take on many roles and learn new skills. SBDM helps collegues build working relationships based on communication, sharing and trust. Common questions about SBDM are answered.

Creating Flexiblity in Performing Arts and Auditorium Space
Vol: 30, Num: 1
Pg. 50-52
Middleton, Stephen A.
This brief summary of a mini-session presentation presents space requirements for various types of performances held in auditoriums. Middleton explores design and space considerations for backstage and rehersal areas, scene and costume shop areas, public lobbies and foyers. Middleton also touches on budget considerations.

Safe School Environment Through Design
Vol: 30, Num: 1
Pg. 53
Mione, Lawrence V., and Jim Robertson
In this brief summary of a mini session presentation, an overview of the 'Crime Prevention Through Education Design' (CPTED) is presented. CPTED is a design which incorporates safety into an effective educational environment. The guidelines for conducting a CPTED assessment are presented, providing readers with the right questions to ask. Problem areas for safe design are identified.

The Wave of the Future: Prototype Classrooms/ Laboratories
Vol: 30, Num: 1
Pg. 58-61
Babineau, Raymond, Farley, Raymond, Dunlap, Larry, and John Stanna
The future of education and its facility implications are discussed, with special emphasis on science and technology. Students of the future will be more learner-directed and free thinking. These changes will be facilitated by technological advances which allow the students to seek knowledge independently. The authors recommend school districts develop prototype classrooms of the future as 'living laboratories.' The authors present an overview of the uses of a technology lab, teacher station, classrooms, electronics area, and other areas.

A Planning Guide for School Music Facilities
Vol: 30, Num: 1
Pg. 64-65
Anderson, Earl
This short overview of a mini-session presentation provides guidelines for designing a music suite — a collection of rooms in a school that are used for music education. These rooms could include everything from rehersal rooms, libraries, storage, and offices, to the performance areas. Anderson presents diagrams illustrating design implications for music facilities, including floor plans, acoustic considerations, storage, equipment, and auditoriums.

North Carolina Public Schools Facility Standards — A Guide for Planning School Facilities
Vol: 30, Num: 1
Pg. 66-67
Gulledge, Karen
Gulledge presents North Carolina's standards for educational space, as conceived under the direction of the state's school funding legislation passed in 1987. Standards are presented for classrooms, science rooms, small group areas, vocational space, media centers, physical education, administration, arts and music, and student and staff areas. Gulledge emphasizes that these standards do not replace the development of educational specifications.

Opening Pandora's Box
Vol: 30, Num: 3
Pg. 14-18
Hurt, Jane
This article presents a case study of a 1987 post-occupancy evaluation conducted at Randolph Elementary School in Arlington, Virginia, assessing the long-term effetiveness of facility renovations made in the early 1970's. The renovations more than 10 years prior had created an open space design; this design, however, was not found to be effective in the long run, as the space was closed off several years later. Observations concerning the effectiveness of interior space and the HVAC systems are also included.

Learning From Experience—How Development Projects Spread 'Good Practice' in Britain
Vol: 30, Num: 3
Pg. 19-23
Clynes, Roger
This article describes the activities of the Architects and Buildings Branch (A&B) of the British Department of Education. Along with its other responsibilities, the A&B conducts development projects, where local innovative educational designs are studied through post-occupancy evaluations. The evaluation is described in detail, and a case study is presented. The article also includes a 'fact file' on British schools.

Post-Facilities and Program Assessibility: Section 504 and the Americans with Disabilities Act
Vol: 30, Num: 3
Pg. 23-26
McKinney, Joseph R.
This article is an overview of the Section 504 of the Rehabilitation Act and the Americans with Disabilities Act, and how they intersect to affect public school buildings. These laws require newly constructed or renovated school buildings to be accessible to people with disabilities.

Post-Occupancy Evaluation: A New Component in the Building Delivery Process
Vol: 30, Num: 3
Pg. 4-7
White, Edward T.
A post-occupancy evaluation analyzes the strengths and weaknesses of occupied facilities; such an evaluation can inform future planning decisions and result in the continual improvement of the quality of educational facilities. Although the post-occupancy evaluation has traditionally occured following the completion of the construction process, the author argues that its place should be during construction as an ongoing process. The author presents an overview of the post-occupancy evalation process, including the measurement tools available and the professionals involved.

Post-Occupancy Evaluation of Stanley Lake High School
Vol: 30, Num: 3
Pg. 7-14
Maclay, William R. and Glen Earthman
This article summarizes the existing information, references and tools available for conducting post-occupancy evaluations. Stanley Lake High School is presented as a real-life case study. The authors include examples of the evaluation data collected. The evaluation at Stanley Lake assessed the technical aspects (health and safety), the functional aspects (building fit), and the behavioral aspects (psychological factors).

Preventative Maintenance: Toward an Expanded Concept
Vol: 30, Num: 4
Pg. 11-13
Sharp, William L.
Sharp proposes an expanded practice of preventative maintenance that emphasizes health and safety issues. Such a change would not only increase the safety of the educational environment, but reduce lawsuits as well. Sharp presents a real life example of how lack of preventative maintenance resulted in a student injury and a judgement of negligence against the school. Sharp recommmends frequent walk-throughs of the facility, with the purpose of identifying potential safety risks.

Up the Down Staircase: Conflict and School Building Design
Vol: 30, Num: 4
Pg. 13-14
Lowe, Jerry M. and Patsy E. Johnson
Lowe and Johnson provide discussion and examples of how faulty design can increase the liklihood of interpersonal conflict. The authors present examples such as stair design, building/classroom location, noise levels. Educational facility planners should consider possible conflict-provoking elements when designing schools.

Site Selection and Environmental Pitfalls
Vol: 30, Num: 4
Pg. 14-15
Morgan, Gary M.
Morgan examines methods to reduce the risks associated with school site selection by following a 5 step procedure. He encourages schools to set criteria in advance of the selection. Certain 'fatal flaws' of potential sites are also presented.

Collaboration Procedures: To Create a 'Break the Mold' School Facility
Vol: 30, Num: 4
Pg. 4-7
Kyrene School District Personnel
This article provides background on a collaborative project between Kyrene SD and Intel to create a 'school of the future.' The authors describe the planning process for designing the facility, including two 'visioning conferences' attended by students, teachers, parents, administrators, board members, educational specialists, and executives. A 'flower' design was created, with six classrooms around a central 'messy lab.' This design was intended to provide the stability of a classroom while still allowing a creative and flexible space for idependent thinkers.

Facilities Programming
Vol: 30, Num: 4
Pg. 8-10
Bullis, Robert F.
The procedures involving facilities programming remain constant , yet new information affects design trends. Bullis briefly describes the decline of flat roofs, HVAC equipment that is not energy efficient, and ineffective lighting methods. He provides an outline of procedures for the construction of physical facilities management.

The Planning of an Educational/Cultural Center for the Oneida Indian Tribe
Vol: 30, Num: 5
Pg. 12-14
Bruss, Lyle
Bruss presents background on cultural considerations in the design of the Oneida Tribal School. A philosophical plan reflecting the cultural heritage of the Oneida Tribe was developed to inform the design process. Bruss provides background on the cultural principals that were incorported into the philosophical plan. He then presents the plan and includes a diagram.

The Role of the Educational Facility Planner on the International Scene
Vol: 30, Num: 5
Pg. 15-17
Streeter, Edward A.
Streeter draws upon his experience visting twelve countries and speaking with those involved in planning school facilities to describe the role of educational facility planners internationally. Streeter asserts that planners in the U.S. and Canada can have a positive impact on educational facility planning worldwide. In many countries, engineers and architects are not familiar with the educational facility planning profession. Planners working internationally must acknowledge the expertise of local architects and engineers, and prioritize communication and teamwork. The planner should not try to force his/her educational ideas on the community, but respect and integrate local customs and culture. Educators and architects abroad could benefit by visiting educational facilities in the U.S. and Canada. Likewise, the U.S. has much it can learn from education in other countires. Financing education internationally continues to be a challege. The planner often finds most of his/her work in the private sector.

Pulling Together: The Need for International Cooperation in Facility Planing
Vol: 30, Num: 5
Pg. 18-20
Yelland, Richard
Yellard discusses the movement of education and facility planing into the international arena, exemplified by the formation of the Program on Educational Building (PEB) by the Organaization for Economic Co-operation and Development (OCED). The OCED, a coalition of 24 countries, priortized the creation of quality educational facilities in 1992 with the formation of the PEB despite the lag in education expansion since WWII. Quality facilities continue to play a crucial role in quality education. School building designs must be adapted to meet new needs, such as technology, changing curricula, new teaching styles, and vocational education. We can facilitate this process by encouraging communication on an international, as well as national, basis. Yelland concludes with a detailed overview of the PEB's priorties and activities.

American and Japanese Education: Similarities and Differences
Vol: 30, Num: 5
Pg. 4-8
Lowe, Robert R.
Lowe compares and contrasts educational pedagogy and curriculum in Japan and America, and the resulting impact on their educational facilities. In illustrating his comparison, Lowe draws on surveys he developed for use by design teams. Lowe's surveys help the design team account for cultural characteristics when designing educational facilities. Lowe provides examples of how design teams cope with the unique conditions in each country, with respect to financing, space, and group vs. individual learning.

Education, The Architect and Cultural Dichotomy in Saskatchewan
Vol: 30, Num: 5
Pg. 9-11
Taylor, Hugh D. and Sharon DeLint
Taylor presents his involvement in the design of the Keethanow Elementary School in Saskatchewan as a case study for community involvement and effective integration of culture into school design. The elementary school was to serve the Cree people of the Lac La Ronge Band, an indigenous population. The challenge of the design team was to adhere to strict federal program regulations while still creating a facility that reaffirmed the values and traditions of the Cree culture. Taylor reflects on the planning and design process, sharing his first-hand experience.

Equipping and Furnishing American-Curriculum International Schools
Vol: 30, Num: 6
Pg. 11-14
Ingraham, Robert annd Hayden 'Bud' Brownson
Americans living overseas often desire American education facilities and curriculum. Equipping and furnishing these overseas facilities presents logisitical, technical, economic and legal challenges for administrators. Much lead time is needed to ensure that the equipment has adequate shipping and installation time. Advanced planning can help alleviate delays. Use of a furniture and equipment consultant can facilitate this process. The steps involved in the consultation process are presented, from reviewing the project requirments to installation. The authors conclude with a list of 'dos and don'ts' for those serving as F&E planners on overseas schools, and a special section on F&E planning for school remodeling.

School Facilities in Japan: The Current Issues on Learning and Facilities
Vol: 30, Num: 6
Pg. 15-18
Kajita, Nick H., Yanagisawa, Kaname, and Katsuyoku Matsuura
The authors describe past, present and future trends in Japanese educational facilities. In the past, most Japanese facilities have emphasized functionality more than decoration. In 1984, the Japanese government prioritized diversifying their school buildings, as well as increasing their space per individual. Accompanying these changes were pedagogical developments emphasizing individualization and diversification. The National Council on Education Reform, active until 1987, made recommendations reflecting these trends, shaping the future of Japanese Education. Currently, new school construction is decreasing and funds are being used to renovate and update existing facilities to accomodate new needs. More schools are developing multi-purpose space, though teaching styles remain more or less uniform. The design process for Johnan Lower Secondary School is presented as a case study of a new facility constructed to reflect these trends in Japanese education and facility design.

Senri International School Foundation—Osaka International School & Osaka Intercultural Academy, A New Direction for International Education
Vol: 30, Num: 6
Pg. 18-19
Wiese, James L.
Wiese describes the Osaka International School and Osaka Intercultural Academy, two exemplary international educational facilities in Japan. Multicultural and bilingual in their curriculum, the schools share many specialized facilities, such as a planetarium, health center, theater, and science rooms. English immersion classes are offered, as well as Japanese classes. The schools aspire to prepare students with the skills for international leadership.

Building Schools for American Kids Abroad: How to Prepare to Design and Build in a Foreign Country
Vol: 30, Num: 6
Pg. 4-7
Carington, Robert
Carington describes the process of designing the American School in Aberdeen, Scotland, a K-12 facility serving children of American oil drilling workers and others wanting an American curriculum. The school involved local professionals in the design process, overseen by an American management company. They were able to build on the educational specifications through input by the school faculty and staff. Carington concludes with an overview of things to remember when building abroad.

Construction Program Management: An Effective Tool for the Delivery of Educational Facilities on the International Scene
Vol: 30, Num: 6
Pg. 8-10
Campbell, Robert W.
One of the challenges involved in facility planning internationally is resolving the diversity of interests and backgrounds of the principals involved. One way to accomplish this is through the use of construction program management. The program manager is involved in all aspects of the program and serves as a mediator between team members. Campbell provides four successful examples in various countries of the use of construction program management on individual projects. Campbell asserts that future international educational facility design will most effectively be accomplished with the assistance of an international construction management organization.

Access, Public Schools, and the Americans with Disabilities Act
Vol: 31, Num: 1
Pg. 11-13
Whisenant, Jay R., AIA, CCS
Presenting an overview of the 1990 Americans with Disabilities Act (ADA), the author emphasizes the fact that this is, first and foremost, civil rights legislation which is being enforced via the federal court system or by complaints filed with representative federal agencies. With a greatly expanded definition of 'disabled,' it carries forward the concepts and approaches of the Rehabilitation Act of 1973 but eliminates the provision that federal funds must be involved. The article provides a summary of key provisions as well as those provisions which affect existing and new or altered facilities. Other topics addressed are design standards, implementation schedule, enforcement provisions, and relationship to state regulations. The author recommends that school district boards adopt a proactive response to this legislation by developing a comprehensive plan of action.

Middle School Post Occupancy Evaluation
Vol: 31, Num: 1
Pg. 14-15
Pattillo, Bob
This article summarizes results of a post-occupancy evaluation of three middle schools (grades 6-8) designed by three different architectural firms for three different school districts. The purpose of the survey, administered to each building's faculty members and principal, was to obtain a systematic evaluation from the faculty assigned to the three new buildings. A floor plan of each school is included.

Turning a Disadvantage into an Advantage
Vol: 31, Num: 1
Pg. 16-17
Edwards, David C.
This article relates how a year-long renovation/addition project at a K-8 school in Saskatoon, Saskatchewan, Canada, was turned into an educational tool for students and staff. In addition, it became an opportunity to involve the community in the process. Listing special events and activities planned throughout the year, the author (emphasizing that the 'school is built with more than bricks and mortar') believes that this program can be applied at any school during a project's construction phase. Before and after floor plans are included.

Prototype School Proposal
Vol: 31, Num: 1
Pg. 18-19
Lurcott, Thomas E., AIA, W. Brubaker, AIA, and P. Szujewski, AIA
Describing their process for designing a new prototype school for the New York City School Construction Authority, the authors list the following three components: prototype school design; interactive CADD design; design/build delivery system. This process, they contend, can offer a potential cost savings of up to 10% and a potential time savings of up to 40%. Diagrams are included.

How a Construction Management Project Affects a Local Economy
Vol: 31, Num: 1
Pg. 20
Hemmes, Brad
In outline format, this article describes how a construction management project affects a local economy. The following topics are listed: planning; campaign; examples of economic benefits; implementation/action plan.

New Designs for the Comprehensive High School
Vol: 31, Num: 1
Pg. 21-27
Jilk, Bruce, AIA with George H. Copa and Virginia H. Pease
Divided into three segments of Introduction, Learning Environment, and Conclusion, this thorough article summarizes educational research targeted to future designs of the comprehensive high school. The study, New Designs for the Comprehensive High School, was carried out in 1991-92 and funded by the U.S. Department of Education. Its major goal was to synthesize concepts, ideas, research findings, and innovative practices on all components of high school design. Findings indicate that the process is as important as the resulting new design specifications, that altering the public's image of school facilities may be the single most difficult task in the needed transformation in American education. Diagrams and layouts are included.

School-Based Management Committees: A Positive Force in Selling the Need For and in Planning New School Construction
Vol: 31, Num: 1
Pg. 30
Herman, Jerry
This synopsis addresses the important role school-based management (SBM) can play in involving the community with the development of new or renovated educational facilities. The author contends that with teamwork, it is possible to create superior learning environments.

Using Basic Quality Management Concept to Produce Total Quality School Buildings
Vol: 31, Num: 1
Pg. 30
Herman, Jerry
The premise of this synopsis is that detailed quality control and a high level of customer feedback are required elements in creating a high quality learning environment—elements which must be addressed throughout the entire process from preliminary design through completion of the project.

Creating Revenue Through Asset Management
Vol: 31, Num: 1
Pg. 31
Hill, Rush
This article addresses the following topics: definition of asset management; how it works; why it works; who is using it; role of public entities. A flow chart of the asset management process is included.

Space Utilization Analysis in Institutions of Higher Education: A Case for Post Occupancy Evaluation Focused Inquiries
Vol: 31, Num: 1
Pg. 32-37
Erdener, H. Eren, Ph.D.
Featured in the Research and Application Column of the Journal, this detailed paper introduces a method of space utilization analysis for higher education institutional facilities as part of post-occupancy evaluation focused inquiries. Sections addressed include the method; initial information; area adequacy calculation; space utilization nomenclature and calculations; planning for classroom spaces; conclusions; and reference. Tables and formulae are included

Vern Burk: CEFPI Planner of the Year
Vol: 31, Num: 1
Pg. 39
N/A
In this mini-interview with Vern Burk, CEFPIs 1993 Planner of the Year, he provides views on developing trends in school facilities planning; key elements of a successful facility planning process; required skills/traits for successful facility planners in the future; and potential differences in future school facilities.

Environmental (Pre-Buy) Assessments
Vol: 31, Num: 1
Pg. 4-5
Spencer, Darrell, Ed.D.
The basic premise of this article is that prior to purchasing a new school site, the school board should secure an environmental assessment of the site. This action will determine if the property is contaminated with hazardous wastes or other toxic materials which might pose a potential hazard to students, staff, and the environment. Additionally, it will determine if the site might be a liability to the district, resulting in remediation costs which could far exceed the cost of the property. The author suggests conducting the work in two phases: Phase I lists steps for evaluating the potential for site contamination while Phase II lists a step-by-step approach for assessing the extent of on-site contamination.

Implementing a Strategic Plan
Vol: 31, Num: 1
Pg. 5-7
Earthman, Glen I.
Focusing on strategic plan implementation for school systems, this article provides information on the following topics: planning process for school systems; how school systems develop a plan; types of planning activities, i.e., strategic, tactical, long-range, and operational; output of the planning process; long-range plan of the school system; description and types of action plans used in school systems. Included are a diagram of the planning process, a chart of action plans listing the responsible school office and corresponding appropriate plan of action, and a list of references.

Enrollment Forecasting: Simple....Isn't It?
Vol: 31, Num: 1
Pg. 8-10
King, Donald G.
Due to numerous individual characteristics which are unique to each school district, enrollment forecasting has no practical 'one size fits all' formula, according to the author. Listed are five general characteristics of forecasting which should be well understood by those preparing and explaining the significance of enrollment forecasts. Short-term (five years and less) and long-term (more than 10 years into the future) forecasting accuracy is addressed along with the following common considerations which most affect the accuracy of such a report: enrollment boundary changes; forecasting new students from new housing construction; computing cohort retention ratios; computing 'weighted' changes; adjusting for parochial and private schools.

Educational Facility Planning and Administration Preparation Planning
Vol: 31, Num: 3
Pg. 04
Lee, Kelvin K.
Citing the growing need to develop a greater link between educational facility design (both new construction and renovation projects) and a school's instructional program, the author calls on Departments and Colleges of Education in higher education to take a leadership role by providing integrated courses taught by qualified faculty which will embrace school facilities as an element of their instructional program. In addition, a case is made for advanced degree and credential programs to recognize and encourage specialization in school facility planning as well as a call for research and written articles (for both professional and lay publications) to determine and then disseminate findings on the relationships between learning and school environments.

Architects and Educators: The Total is Greater than the Parts
Vol: 31, Num: 3
Pg. 05-06
Burch, A. Lee
This article speaks to the synergy created when educators and architects work together to design high quality learning environments, ones which will meet today's needs as well as those of the schools of tomorrow. The key question, according to the author, is 'does the space provide the learning environment flexibility for the true clients—the students?' References are included.

Furnishing and Equipping New Educational Facilities
Vol: 31, Num: 3
Pg. 07-09
Hudson, Pegge Price, IBD
Hudson believes that it is essential that the end users be involved and have input into the facility planning process along with administrators and architects when furnishing and equipping new educational facilities. Only by including them will you ensure that the furnishings and equipment, equally important elements in a successful school, are appropriate to the needs, sized correctly, and are practical, functional, and durable. Also addressed are percentages and costs; accessory items; and funding.

Facility Planning for Technology Implementation
Vol: 31, Num: 3
Pg. 09-12
Ross, Tweed W. and G. Kent Stewart
Addressed are topics which the authors contend require serious attention when planning for technology implementation, especially when upgrading existing facilities. Space, Wiring, Lighting, Security, Furniture, Shielding ELF, and Acoustics are the important areas. The need to make technology decisions which support the curriculum is stressed. References are included.

Facility Requirements for Integrated Learning Systems
Vol: 31, Num: 3
Pg. 13-19
Knirk, Frederick G.
Based on the belief that the physical environment can impact learning, problem solving, and information handling and retreival, the premise of this article is that the design of integrated learning systems (ILS) is critical to the well being of their users. Since ILS systems are computer-based, design emphasis is placed on creating a good learning environment for the computer medium. Topics addressed include: environmental features of teaching and learning areas; lighting (illumination levels, contrast, colors); space, furniture and equipment interface requirements; ambient noise and acoustical control; temperature control; security of the ILS area and storage of materials. Tables and references are included.

Avoiding Negative Physical Environment Impact from Budget Limitations
Vol: 31, Num: 3
Pg. 19-21
Stewart, G. Kent
Of the three types of limited budget projects—emergency improvements, limited scope improvements, and broad spectrum modernization (which includes new construction)—the first two are most likely to be underfunded, whether by accident or purposefully and with full knowledge of the probable consequences of the shortfall. In addition to discussing reasonable options for planning around an inadequate budget, whatever the type, Stewart also addresses the topics of equipment deferral; acoustical-visual-thermal environment; furnishings; and space. References are included.

Human Factors Engineering and School Furniture: A Circular Odyssey
Vol: 31, Num: 3
Pg. 22-23
Lane, Kenneth E. and Michael D. Richardson
This article is a call to action to determine the best design for student furniture based on human factors and engineering research. Listed are three steps which they contend, if taken, will break the cycle of schools ordering and manufacturers producing the same furniture as they always have simply because 'that's the way it's always been done.' Based on the limited amount of available research in the field and the implications or steps they list, the authors offer five recommendations to change this important but static area of facilities planning. References are included.

High Schools: The Next Generation
Vol: 31, Num: 3
Pg. 24-26
DeJong, William S. and Tracy A. Vezdos
Advocating an interdisciplinary rather than a departmental delivery system approach in high schools, both current and future, the authors address questions raised regarding 'typical' specialized spaces when using an interdisciplinary base. Areas addressed include the following: science; administration; specialized labs; industrial arts; special education; technology; life management; media center; and physical education. Also addressed is the increasing variety of space required under both departmental and interdisciplinary program models; floor plans are included. The key, according to the authors, is flexibility. This article appears in the journal's Practitioner's View column.

Contacting American Overseas Schools
Vol: 31, Num: 3
Pg. 27
Engelhardt, David
This article, appearing in the journal's World-Wide Facility Planning column, provides both contact and descriptive information on American overseas schools.

The View from Here
Vol: 31, Num: 4
Pg. 02
Earthman, Glen I.
The issue editor, in introducing the articles contained in this issue, briefly reviews changes that have taken place in school system grade configurations over the past 40+ years, the issues driving those programmatic changes, and the impact they have on the facilities which house them.

The Early Childhood Learning Center
Vol: 31, Num: 4
Pg. 04-05
Dancu, Daniel
This article describes programs and services housed in the Titusville Area School District's Early Childhood Learning Center, located in Titusville, PA. Based on the school district's philosophy, which subscribes to the 'psychological concept that a child's basic behavioral pattern is most affected by daily life experiences from birth through five years of age,' this center was specifically designed for the programs and services described. They include: Early Intervention Program; Day Care; Pre-Kindergarten; Developmental Kindergarten; Kindergarten; Kindergarten Program Activities; and Pre-First. Floor plans are included.

A Model for Building Condition and Student Achievement and Behavior
Vol: 31, Num: 4
Pg. 06-09
Cash, Carol S.
Based on business studies concluding that a better environment is related to higher production and greater employee satisfaction and on research conducted in schools, the author has constructed a theoretical model for use in schools. Developed to show the relationship between school physical environment and student variable outcomes, this model can be applied to any school, thus enabling school leaders to make informed decisions which would potentially affect student behavior and achievement. Topics addressed include: Leadership and Financial Ability; Maintenance and Custodial Staff; Direct Effects (lighting, acoustics, climate control, color, density); and Indirect Effects Through Attitude. Model diagram and references are included.

The Architecture of Children's Centers
Vol: 31, Num: 4
Pg. 10-15
Passantino, Richard J., AIA
Written by an architect who has specialized in early childhood learning environments for nearly 25 years, this article reflects the author's belief that the United States is not doing its best when it comes to the early care of its future citizens. He advocates that pre-school/day-care centers should be financed like our public education system. Topics addressed include: the Team; Appropriate Learning/Care Giving Environment for Young Children; Environmental Zoning; Outdoor Play and Learning; and the Expanded Role of the Children's Center. Also addressed are: Building Codes; Risk and Liability; the Building as a Teaching Tool; and Who Should Provide Child Care Services. Pictures, building layouts, and references are included.

An Approach to Early Childhood Educational Facilities in Urban School Districts
Vol: 31, Num: 4
Pg. 15-17
Johnson, W. Frank
Referring to pre-kindergarten and kindergarten programs as ECE, or Early Childhood Education, the author suggests one approach for urban school districts to use to meet the need for ECE facilities. Addressing topics such as factors generating the need for such facilities, the space program, construction features, and budget estimate, the author makes a case for providing ECE facilities which are separate from larger elementary schools. Conceptual diagrams are included.

By-Product or a Main Product of Writing Educational Specifications
Vol: 31, Num: 4
Pg. 17-19
Engelhardt, David
This article in the World-Wide Planning Column, provides the results of the author's 'small, unobtrusive 'research' study,' asking the possible benefit of hiring an educational consultant for developing educational specifications. Also addressed is the relevance of this topic for world-wide planning issues.

Maintenance: The Unavoidable
Vol: 31, Num: 4
Pg. 20-21
Pittillo, Robert A.
The premise of this article in the Practitioner's View column, is that since maintenance is unavoidable, a school board should include 'deferred maintenance' as a regular budget item. This is not to be considered an uncovering of mismanagement but rather an improvement in the budgeting system. This ensures that the general public understands the complete ramifications of continuous underfunding of current expenses for facilities and equipment maintenance. Using a roof as an example, the author demonstrates how to calculate deferred maintenance. References are included.

School Based Management Committees: A Positive Force in Selling the Need for and in Planning New School Construction
Vol: 31, Num: 4
Pg. 21-23
Herman, Jerry J.
Providing a definition for school-based management (SBM), Herman then provides information on the extent of this restructuring in the United States. Also discussed is how SBM committees can assist in selling the need for new construction as well as the development of important educational specification information which SBM committee members can provide. A list of selected references is included.

The View From Here
Vol: 31, Num: 5
Pg. 02
Lilley, H. Edward
This column by the issue editor introduces the issue's focus—that of special education and how how the 'heart' of the recently-passed Americans with Disabilities Act (ADA) of 1990, 'inclusion' (U.S. terminology) or integration' (Canadian terminology), may impact school facilities and those who plan and design them.

The Americans with Disabilities Act of 1990
Vol: 31, Num: 5
Pg. 04-05
Edgell, Wally
The Americans with Disabilities Act (ADA) of 1990 is civil rights legislation enacted to provide protection to those individuals with disabilities. Under the ADA, those with disabilities are guaranteed equal opportunities in the areas of employment, public accommodations, transportation, state and local government services, and telecommunications. The author, a clerk with one of the U. S. District Courts, first outlines what constitutes a disability under the ADA and then provides a brief description of Titles I, II, and III of the Act. Endnotes are included.

Public Schools and the ADA
Vol: 31, Num: 5
Pg. 06
Martin, Richard H.
This article briefly addresses the four titles of the Americans with Disabilities Act (ADA) of 1990, listing the areas covered under each title. Noting that the ADA does not specifically mention public schools, Martin outlines various Public Laws, including the Rehabilitation Act of 1973 and the 1985 Education for All Handicapped Children Act, which already hold schools to rigorous standards. However, those involved with school facilities should continue, according to the author, to keep abreast of any new developments the spirit of the ADA may spawn.

Implications of Special Education on School Design: Practicality, Not Theory
Vol: 31, Num: 5
Pg. 07-09
Lane, Kenneth E., Stanley L. Swartz, and Jeff McNair
This article addresses the practical impact of special education on school design based on the four major Congressional enactments which have impacted and will continue to impact those designs. Of the four enactments promoting barrier-free schools (the Education of the Handicapped Act, Architectural Barriers Act of 1968, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) of 1990) special attention is given to ADA requirements. Topics addressed include: 1) Parking, Passenger Loading & Building Access; 2) Corridors, Elevators & Stairs; 3) Classrooms; 4) Restrooms; 5) Cafeterias; and 6) Libraries. References are included.

A Bridge Over Troubled Water: Facility Needs for Inclusive Classrooms
Vol: 31, Num: 5
Pg. 10-15
Pierce, Judy, Joyce Rasdall, and Janice Ferguson
Based on the premise that no student is disabled, the authors of this article call for universal design in schools that meets the needs of ALL students, each of whom possesses different abilities. In addition to a definition of and background on inclusive education, attention is paid to barrier-free legislation, the Americans with Disabilities Act (ADA). Other topics addressed are: 1) User Perception of Space; 2) Socially Responsible Design; and 3) Universal Designs. Also included are a facility programming paradigm diagram, matrix of user needs, and references.

Designing Schools for All Kids
Vol: 31, Num: 5
Pg. 15-17
Sydoriak, Diane
Contending that tomorrow's schools will not be designed with the same students in mind for which they were originally designed, Sydoriak cites the education reform movement (including its restructuring component) and passage of the Americans with Disabilities Act (ADA) of 1990 as catalysts for designing barrier-free schools to meet the needs of all students. Given this move toward inclusive classrooms, the author lists 24 questions to be posed to school administrators, school board members, faculty, and constituents, the answers to which will 'paint a realistic picture of the school's mission and accurately describe all students and their diverse needs.'

Full Inclusion: What Does it Mean for Education?
Vol: 31, Num: 5
Pg. 18-19
Peterman, Tina
Listing the legislative history and varying definition of the term, 'full inclusion,' this article then addresses the curricular and, to a lesser extent, the facility implications of this requirement to educate handicapped children, to the extent possible, with their non-handicapped peers. Also addressed are legal entanglements. References are included.

A Case Study...The Gaenslen School in Milwaukee
Vol: 31, Num: 5
Pg. 20-23
White, William G., Jr., Ed.D.
This article recounts the experience of the Milwaukee Public Schools when renovating one of its older schools which had been exclusively devoted to serving the physically handicapped into one serving both regular and exceptional students in grades pre-K-8. Information is provided on design decisions for regular classroom space as well as specialized areas in order to accommodate a variety of special student needs and special programs not found normally in elementary schools. Pictures and floor plans are included.

The View From Here
Vol: 31, Num: 6
Pg. 02
Lehr, Ernie
This issues focuses on school site problems and solutions. Written by the issue editor, this opening column briefly addresses the topic of educational specifications (ed specs) and includes statistics for elementary, middle, and high schools taken from an earlier edition of CEFPI's Educational Facility Planner. Citing the fact that ed specs are derived from an analysis of curriculum and teaching methods which are determined by local school boards, he concludes that a national comparison of these statistics is inappropriate.

Selecting School Sites
Vol: 31, Num: 6
Pg. 04-06
Ringers, Joseph, Jr.
Published originally in the Nov-Dec 1972 issue of CEFPI's journal, The Educational Facility Planner, this issue's editor deems the reprinted information on school site selection as still being valid. Authored by a CEFPI Emeritus Member who was the 1974 recipient of the organization's prestigious Planner of the Year Award, the article addresses areas of Initial and General Decisions, External and Internal Changes, and Special Urban Problems. Included is a chart on school site size.

Planning for Alternative Future Use: Some Recent Projects in Australia
Vol: 31, Num: 6
Pg. 07-09
Gorey, Ann and Jeff Porter
This article by two South Australian authors describes their efforts to achieve flexibility via deliberately designing in alternative, commercial, future uses for new educational facilities. Several projects are listed which illustrate their approach. Based on the assumption that educational facilities are an investment versus simply an expense, five steps are listed to meet these flexibility objectives. Included are site location and functional relationship diagrams.

School Site Selection and Approval Guide: An Excerpt from the California Department of Education's School Site Selection and Approval Guide
Vol: 31, Num: 6
Pg. 10-12
California Department of Education
These excerpts from the California Department of Education's School Site Selection and Approval Guide provide detailed information on the following topics: Selecting the Proper Site; Selected Safety Factors; and Site Review Factors. Included are charts for a site review analysis and a site evaluation summary.

School Site Problems and Solutions
Vol: 31, Num: 6
Pg. 13-22
CEFPI Practitioners
In response to a CEFPI survey asking about specific site problems, this article contains responses from 18 school districts internationally. Each district describes its specific site problem and the solutions to address that problem. Contact names and telephone numbers are provided.

A Practitioner's Response
Vol: 31, Num: 6
Pg. 23
Engelhardt, David F.
The author raises the possibility that site planners all too often interpret opportunities as problems without taking into account the potential educational opportunities available. His solution to this problem is two-fold: 1) incorporate the site attribute into the curriculum, and 2) take a more balanced approach to risk management, one that does not assume that every hazard must be eliminated out of fear of potential accidents and resultant law suits.

Ready to Learn: Toward Design Standards for Child Care Facilities
Vol: 32, Num: 1
Pg. 04-10
Moore, Gary T., Ph.D.
Based on empirical research and the best high-level practice gleaned from a study of 150 child care centers in the U.S., Canada, Scandinavia, and parts of northern continental Europe, the author lists 18 key planning and design principles which he asserts are the basis for quality child care. Organized in a five-step nested hierarchy of neighborhood hub model, site planning, building as a whole, houses, and outdoor activity areas, each of the 18 principles is listed with a short definition. The author offers these principles as beginning guidelines which he hopes may lead to the first set of design standards for child care facilities. Included are diagrams, cited references, and sources of additional information.

School Construction Trends
Vol: 32, Num: 1
Pg. 10-12
Abramson, Paul
In charts, graphs, and text, this 1992 article provides facts and figures on the amount of money spent on U.S. school construction by type of building (new, additions, renovations/ retrofits). Based on a national survey the author conducts annually, figures are sorted into ten geographic regions. The author lists four significant reasons for his assertion that increased school construction will continue: 1. number of children being born, 2. significant maintenance requirements for existing buildings, 3. shrinking capacity of buildings to house new educational programs, 4. evolving technology requirements. Rationale is provided for planners and architects to take responsibility for producing and maintaining high quality facilities for the long-term versus attention paid only to immediate short-term cost concerns.

Construction Project Management for Managing a School Design and Construction Program for the Project Launch Phase
Vol: 32, Num: 1
Pg. 13-15
Raubacher, Charles
Aimed at school district facilities directors, this article provides a detailed outline on how to manage a school design and construction program. Beginning with an introduction listing the duties/responsiblities of a school facilities director, it addresses the following headings: general project management description; traits/capabilities of a good project manager; project team description; project phases; and project launch (or pre-design) phase.

School Bond Election Steps for Winning at the Polls
Vol: 32, Num: 1
Pg. 16-17
Bauscher, Richard H.
Using what he terms 'proven techniques,' the author lists 10 basic steps for designing a school bond election campaign to help ensure a winning outcome at the polls. Starting with the development of a strong public relations program through the final debriefing and evaluation, each of the 10 steps in the process includes supplemental detail in bulleted format.

Financing Capital Projects Through Energy Management
Vol: 32. Num: 1
Pg. 18-19
Zuber, Edward
Performance contracting, a flexible energy savings program, has varied definitions and applications. But, at its core, a school district is guaranteed a specific amount of savings by the local energy savings company (ESCO). Citing the American Association of School Administrators' (AASA) well-known study, 'Schoolhouse in the Red,' the author lists the age of U.S. school facilities, the escalating results of deferred maintenance decisions, and rising energy costs due to inefficient energy equipment and practices, as problems facing many resource-poor school districts. He sees performance contracting as an effective method of addressing energy costs as school funding dwindles. The article includes copies of a slide presentation illustrating results of a case study at Monroe City Schools in Monroe, LA.

The Relationship Between Building Condition and Student Achievement and Behavior
Vol: 32, Num: 1
Pg. 19
Clark, Carol S.
Results of a study examining the relationship between the condition of school facilities and student achievement and behavior are listed by Clark. Developed within the context of a model defining a relationship among related variables, the study included the entire population of small rural high schools in Virginia. The author lists determining elements for building condition, student achievement, and student behavior; adjustment for socioeconomic status; and methods of investigation.

Citizen Involvement in Facility Decisions and Elections: An Outline
Vol: 32, Num: 1
Pg. 20-21
Stewart, G. Kent
Using an outline/checklist format, the author addresses the following topics regarding citizen involvement in facility decisions and elections: when to involve; how to involve; data needs; opinion polling; referendum planning; and finally, a list of sources.

Retrofitting and Expanding Existing Schools
Vol: 32, Num: 1
Pg. 21
Allen & Sherriff Architects, Inc.
This outline, summarizing a conference presentation on retrofitting and expanding schools, addresses the topics of funding allocations, design solutions, and construction.

Using Basic Quality Management Concepts to Produce Total Quality School Buildings
Vol: 32, Num: 1
Pg. 22-23
Herman, Jerry J.
The basic premise of this article is that to produce a quality learning envionment, only those owners and architects who utilize the following three basic concepts will produce a total quality school building: 1. internal and external customer feedback; 2. on-going value-added quality control checklists; 3. quality results in services and products. The author then lists how these three concepts should be applied during the three building phases of pre-design, construction, and completion. Graphs and a list of suggested references are included.

Comprehensive Facility and Program Inventories: Building Blocks for Planning
Vol: 32, Num: 1
Pg. 24-25
Wallace, Floyd, Associates, Inc.
School administrators are being called on to incorporate more supplemental and special programs, in addition to regular academic programming, into their facilities. Incorporating and updating these progams as well as the ever-advancing technology systems will place new demands on facilities. The authors suggest that an often untapped initial planning resource for school administrators is an assessment of program usage 'as related, and in addition to, facilities usage.' Citing a recent facility and programming inventory completed for the Boston Public School System as an example of strategic resource planning, they list three important points to consider when preparing for facility planning.

Environmentally Controlled Opportunity: Environmental Hypersensitivity and Our Schools
Vol: 32, Num: 1
Pg. 25-26
Barsoum, Reg
Environmental hypersensitivity is, according to the author, a legitimate concern which has been overlooked until recently. Listing procedures utilized in operating the first environmentally controlled opportunity (ECO) classroom opened in the Kitchner-Waterloo Collegiate and Vocational School in Kitchner, ONT, in 1985, he addresses the question of 'what can be done.' He avers that dramatic increases and ability to learn have been observed in environmentally hypersensitive students using the ECO classroom and offers some attendance statistics in support of his statement. The author states his belief that creating an entire educational facility which is environmentally aware can positively affect the learning level of the entire student body. He cites problems with 'sick building' syndrome affecting growing numbers of schools, reporting the suggestion of some school construction experts that it may be aggravated by financial cutbacks in maintenance budgets. Changing our view of the school environment, he believes, will lead to a healthier school for everyone. References are included.

On the Cover: Perry High School, Perry, Ohio
Vol: 32, Num: 3
Pg. 02-02
Editorial
A description is provided of Perry High School in Perry, Ohio, shown on the cover of this issue. Specifics, such as site size, capacity, gross and per pupil areas, total project costs, and principals involved are listed. Also included is information on the school district's mission, the program/design and the school building's function as a 'community education village.'

Dear Nancy
Vol: 32, Num: 3
Pg. 04
Smith-Myers, Nancy
This issue's 'Dear Nancy' column, devoted to answering planning questions submitted by its readers, addresses a school superintendent's question on how to determine 'friend from foe' when dealing with outside planning 'experts.' The foundation is laid for answering additional questions on this topic in future columns.

Top Ten Most Frequently Observed Building/Planning Errors
Vol: 32, Num: 3
Pg. 04
Smith-Myers, Nancy
Drawing on her 15 years of experience in the field, the author lists the top ten most frequently observed building/planning errors in educational design projects. No one person or group is at fault, she contends, noting that architects, planners, school boards, faculty, staff, and construction managers all share in the problems. She suggests that perhaps readers who have developed their own checklists will share them with CEFPI headquarters, thereby facilitating the creation of a more comprehensive master list which can then be shared by all parties concerned.

Insisting on Creativity: Challenging the Design Team to Creative Problem Solving
Vol: 32, Num: 3
Pg. 05-06
Baker, Susan, AIA
This author and architect lists the following traits of a successful architect: creative; adept problem solver; team player; and most importantly, a good listener. Providing insight from an architect's perspective, she addresses the importance of clearly defined goals, budget considerations, site characteristics, vernacular cues, and daylighting in addition to identifying a number of important operational considerations. Emphasis is given to the importance of addressing planned expansion in the original design and exploring creative ways to make the building unique and individual. This article focuses on challenging an architectural design team to be creative — to stretch their combined imaginative skills to meet the needs of the actual users in creative ways. Pictures illustrating creative solutions are included.

Land and the Law: Purchase at Your Peril
Vol: 32, Num: 3
Pg. 06-07
Groce, Laura
Due to the great increase in state and federal regulations governing land and building acquisitions, purchasing land is now an area 'fraught with peril' for school administrators, according to the author. Stating the key requirement as the process of the board of trustees' ability to make an informed decision when purchasing property, she describes a 'due diligence investigation.' The five (5) principal areas in such an investigation are: 1. zoning and utilities 2. environmental 3. title and survey 4. conflict of interest 5. fairness of purchase price. A brief review of land acquisition methods other than direct purchase (including lease purchase, eminent domain, and land trades) ends the article with the author's note to 'proceed with caution' on these alternative methods.

Training
Vol: 32, Num: 3
Pg. 08
Vezdos, Tracy
This on-going column regarding training, raises a number of questions for facility planners, such as a need for and type of formal continuing education programs, need for an advanced degree, and issues of regulation, criteria, and standards. The author advocates the need for professional development for facility planners and then invites column readers to share their ideas on the unanswered questions with CEFPI headquarters office.

Future School Facility Design: Clues from Emerging Definitions of Teaching and Learning Plus New Thoughts about Learning Organizations
Vol: 32, Num: 3
Pg. 09-11
Keck, Dan
When looking at future school facility design, the lesson to be learned, according to the author, is that planners 'need to pay as much attention to the direction in which the educational organization is evolving, as to the direction in which the instructional pedagogy is evolving.' It is just as important to learn what is going on in a school's organizational space as it is to learn what is going on in the teaching space; knowledge of the latter alone is not enough. Planners need an understanding on the instructional side of three basics which he describes: 1. the effective learner; 2. the effective teacher; and 3. the effective organization. He then describes five organizational trends which he believes are impacting learning environments: 1. hierarchical to hetrarachical; 2. linear to mutual causality; 3. mechanical to holographic; 4. assembly to morphogenisis; 5. determinant to indeterminant.

Non-Visual Effects of Classroom Lighting on Children
Vol: 32, Num: 3
Pg. 12-16
Hathaway, Warren E., Ph.D.
This detailed article lists results of a two-year study in the late '80s and early '90s on the non-visual effects of different lighting systems on elementary students in the Alberta Education System, Edmonton, Alberta, Canada. These results, indicating that light did have a measurable and significant effect on students, are similar to findings of a 1981-85 pilot study by Alberta Education. Examined were students' dental cavities, health, growth and development, attendance, and academic achievement under four different lighting systems: (a) full spectrum fluorescent lamps; (b) full spectrum fluorescent lamps with ultraviolet light enhancements; (c) cool white fluorescent lamps; (d) high pressure sodium vapor lamps. Tables and a bibliography are included.

In Search of Equitable Learning Environments: The Acoustics of Classrooms Used in 'Mainstreaming' Hearing-Disadvantaged Students
Vol: 32, Num: 3
Pg. 16-23
McVey, G.F.
Provided within is a summary of findings as well as a set of five recommendations for classroom acoustics in rooms where sensory-challenged students will be mainstreamed. This article documents the author's response to parents of a hearing-impaired child who reported considerable difficulty hearing in a regular classroom despite test data from an acoustical consultant indicating that there was no problem and that no corrective action was warranted. The two most obvious existing problems addressed are the excessively high ambient noise levels in a regular classroom due mainly to noisy wall ventilators and to a room's excessively long reverberation times. Included is a list of references.

Dear Nancy
Vol: 32, Num: 4
Pg. 04
Smith-Myers, Nancy
This on-going column, devoted to answering submitted planning questions, focuses issue on the question of designing a 9-12 high school facility with a vision for educational change. The key word to ensuring this vision, according to the author, is FLEXIBILITY...flexibility designed into the facility to meet progam changes. Two areas specifically mentioned are in academic and lab areas, and potential flexible uses are listed. The author contends that the building design should reflect a school district's educational vision for its students.

Technology
Vol: 32, Num: 4
Pg. 05
Cavallo, Jim
This article, part of an on-going Technology Column, describes a specific technology application in a high school setting. Process Writing Lab at Chesterton High School in Indiana, a fully-staffed two-room computer lab containing 60 machines is profiled. Using writing as the primary tool, the lab's emphasis is on the process of developing students' thinking and analysis skills. The article briefly addresses the following points: lab staffing; operational policies; interdisciplinary instruction; teacher use of technology as a teaching tool/ technique; making the technology transparent.

Emergent Educational Facility Planning Issues
Vol: 32, Num: 4
Pg. 06-11
Hathaway, Warren E.
Using graphs and flow charts as illustration, the author discusses both the potentials and the realities facing educational facility planners, then focuses on how to achieve those potentials in the design of future educational facilities. Potentials include: information technologies; new paradigms; integrated learning systems and virtuality; and learning and human performance enhancement. Four important realities mentioned are: technology adoption; fiscal restraint; learning environments; and environmental considerations. Achieving potentials—how to get there from here—is most likely to occur when clear principles and general specifications are adopted, avers the author, who lists in some detail the specifics of each. References are included.

Educational Change: The Impact on Schools of Kansas City, Missouri School District
Vol: 32, Num: 4
Pg. 12-13
Ramsey, Larry G.
While acknowledging gaps and problems in implementing educational initiatives resulting from the often referred to 1985 court-imposed desegregation order for the Kansas City, Missouri School District, the author nevertheless maintains that positive changes are taking place. As the school district's planning director, he describes those positive changes in both the educational program and the facilities which support it, ranging from pre-K through 12 levels. He concludes by inviting the reader to go beyond reading published (often critical) reports and actually visit the schools to experience these changes first hand.

Making Your School a 'Learning Tool'
Vol: 32, Num: 4
Pg. 14-15
Hill, Franklin, Ph.D.
The author believes that a school district's curriculum and educational outcomes are not separate from the environment which supports them. Supplemented by illustrations, he suggests ways in which technology, science, and building design can be integrated, thus supporting his thesis that the building should proactively enhance and contribute to the values and anticipated learning outcomes set forth in a district's educational specifications. The planning process for achieving this is listed as well as a challenge to designers to envision the entire environment as an 'holistic learning delivery system.'

Claims Are Not Inevitable: 10 Steps from Planning to Construction That Can Make a Difference
Vol: 32, Num: 4
Pg. 17-18
Holifield, Julie
Examined are the following 10 points which the author believes are critical to making a school construction project run as smoothly and cost-effectively as possible: 1. team development; 2. pre-design planning; 3. defining project budgets and estimates; 4. developing and monitoring schedules; 5. phasing the project; 6. constructability reviews; 7. pre-qualification of bidders; 8. controlling changes; 9. claims mitigation; 10. project close-out.

Walnut Creek Middle School: Post-Occupancy Evaluation
Vol: 32, Num: 4
Pg. 19-21
Dancu, Daniel E., Ph.D., REFP and Fred W. Garnon, Ed.D.
Graphs, charts and tables support this post-occupancy evaluation case study conducted in Walnut Creek Middle School in Erie, PA., part of the Millcreek Township School District. More than a technical activity, the authors define a post-occupancy evaluation as 'research designed to aid the process of policy formation, program design and implementation, and management.' By definition, it is also a political activity since it is conducted within a context where stakeholders can and do affect both the ability to conduct an effective evaluation and the manner in which evaluation results are employed by school boards, administrators, and facility planners. In addition to listing various reasons for conducting such an evaluation, they discuss capital development planning, their survey results, specific design features, and, finally, their conclusions.

Community Use of School Facilities: Florida's Experience with the Community Education Facilities Act
Vol: 33, Num: 3
Pg. 09-11
Mackenzie, Donald G.
Mackenzie examines community use of schools funded by the Florida Community Education Facility Act through a mail survey conducted in 1992. The questionaire assesses the type of facility, operating agency, degree of community use, and evaluation and cooperation content in the interlocal agreement. All 38 funded schools were contacted; 19 projects responded. Mackenzie found that recreation and sports facilities were most likely to be funded (42%). Operation responsibility tended to be divided in most projects. Only half of the projects that responded had an evaluation provision in their interlocal agreement. More than 50 percent of projects were managed to facilitate community use, however 10 percent indicated that community use of their facility was not allowed. The results suggest the need for an annual evaluation of projects funded under this Act to assess compliance with the community use provision.

Building Bridges of Communication: The Columbus Public Schools and the City of Columbus
Vol: 33, Num: 3
Pg. 12-13
Vezdos, Tracy
This article describes the partnership formed between the City of Columbus and the Columbus Public Schools. A standing committee was formed to facilitate communication between the two organizations. The Columbus Comprehensive Plan states a goal of joint use of facilities by the City and Columbus Public Schools. The collaboration between these organizations increases the overall effectiveness of the activities of each.

Visioning: Involving Teachers as Process Partners for Facility Planning
Vol: 33, Num: 3
Pg. 14-17
Stanard, Marilynn
Stanard illustrates the importance of effective communication between planners and teachers when designing a new school building. Because planners and teachers speak different professional languages, they often talk past each other during the design process. Cultural differences may also contribute to this miscommunication. Stanard presents a 'visioning process' plan to facilitate the design of a facility that reflects the teaching needs, curriculum, and cultural makeup of the school.

The Deferred Maintenance Crisis: A Comparison of Smaller State-Supported and Independent Institutions
Vol: 33, Num: 3
Pg. 18-23
Hackett, E. Raymond and Thomas E. Morgan
This study describes secondary analysis conducted on data collected by the NCES and Auburn University to determine the relationship between total educational expenditures and maintenance and operations expenditures at liberal arts colleges and universities over a ten year period. Findings suggest that institutional revenue factors tended to maintenance and operations budgets during the period studied. Analysis of other independent variables is included. Another analysis determined expected and deferred maintenance needs in eight colleges, and developed an annual budget to meet the cost of those needs. Tables and references included.

The Need for Technological Training
Vol: 33, Num: 3
Pg. 5
Rookey, Ernest
Technology is changing and growing at a rate unequaled in history. Like in the agricultural and industrial revolutions of the past, technological advancement must be accompanied by social change. However, we are currently experiencing a cultural lag, as institutions attempt to catch up with technolgical advancements. Educational facility planners must become educated in these new technologies and the social issues that accompany these changes, in order to develop educational facilities which support these developments and facilitate learning.

Community Center Schools for Today
Vol: 33, Num: 3
Pg. 6-8
Ringers, Joe
Ringers explores the importance of creating schools that serve as community centers, combining learning facilities with space for community and social services. Schools with declining student populations are excellent candidates for such a change due to their excess space. Community programs within the school would be staffed by the social service agencies they represent, not the school district itself, making staffing expense feasible. Developing a community school requires strong leadership and communication between all the different elements of the community.

Building an Effective Site Investigation Team
Vol: 33, Num: 4
Pg. 04-07
Haun, Gene
Haun describes in detail the site investigation process, stressing teamwork, communication and structure. The roles of principle team members are defined, including the facilitator, the leader and the recorder. Haun presents a site visit checklist and discusses common pitfalls. Guidelines for writing site visit reports are provided, as well as a list of goals in developing the educational specifications.

Learning Modalities: Facility Design Impacts on Performance
Vol: 33, Num: 4
Pg. 08-09
Hill, Franklin
Hill describes the role of sensory modalities (vision, hearing, kinesthesis, emotion, taste, and smell) in learning. Effective facility design supports the role of the sensory modalities in learning. An example is provided of how poor location of a mounted video monitor inhibits visual processing of the information presented, thereby obstructing learning. Hill suggests inclusion of cognitive learning specialists and environmental planners in the design process.

Elementary School Student Capacity: What Size is the Right Size
Vol: 33, Num: 4
Pg. 10-14
Stevenson, Kenneth R.
Stevenson analyzes the relationship between school size and student achievement in South Carolina elementary schools. Schools with high student achievement were determined by the winners of the South Carolina Department of Education cash incentive award — an award based upon student gains and standardized test scores. Contrary to popular opinion, results show smaller is not necessarily better when it comes to learning. The bigger schools were more likely than the smaller schools to show higher student achievement. Similarly, smaller schools were more likely to be 'dysfunctional' than the bigger schools. However, while a positive relationship between size and achievement did exist, the relationship was not strong. Socioeconomic status seemed to be an intervening variable.

Designing Early Childhood Education Environments: A Partnership Between Architect and Educator
Vol: 33, Num: 4
Pg. 15-17
Maxwell, Lorraine
Maxwell discusses the importance of teacher involvement in the child care facility design process to create a physical environment that facilitates learning goals. The physical attributes of an effective child care facility are discussed, as well as the design elements necessary to ensure these attributes are present. Maxwell presents a table illustrating how design decisions affect the learning environment, where she includes examples.

CEFPI's Heart to Honduras Educational Facilites Team
Vol: 34, Num: 2
Pg. 04
Jennings, James E.
Provides an overview of a CEFPI team's trip to Honduras. Team members conducted an evaluation of educational facilities through site visits of mostly one-room schoolhouses. They interviewed teachers and government officials to discuss regional education conditions. Team members also developed a concept for a model school that they shared with Honduran educators.

Pictures at an Exhibition
Vol: 34, Num: 2
Pg. 05-08
Kunz Jr., Walter S.
A team of architects, facility planners and educators examined a student (K-12) art exhibit entitled 'School Interiors: A Look Inside the Spaces Where We Learn' in order to gain insight on how students perceive their schools. Researchers found their artwork illustrated the psychological effects of overcrowding, and the desire for visual stimulation, more windows and increased building height.

Communciations on School Facility Projects - A Promise to the Community
Vol: 34, Num: 2
Pg. 09
Craig, Joyce A., DeJong, William S., and Scott McComb
Beaufort County School District in South Carolina developed the 'Facilities 2000' plan, leading to the passage of a $122 million bond referendum for the construction or renovation of thirteen schools. An Oversight Committee, consisting of 23 community members, was established to facilitate communication on the progress of the plan. This committee worked closely with the educational facilty planning firm, three construction management firms, ten architectural firms, thirteen educational specifications committees, the Board of Education, and a Superintendent of Schools. Beaufort County School District is a model of success for community involvement in school construction and/or renovation.

The Impact of Property Wealth and Income Wealth on School Bond Elections
Vol: 34, Num: 2
Pg. 10-12
Jacobson, Thomas
Jacobson assesses the correlation between income and property wealth in Nebraska school districts; he then analyzed the relationship between wealth indicators and successful passage of school facility bond issues. Jacobson finds a weak positive correlation (non-significant) between income wealth and property wealth. He further found an inconsistent relationship between wealth factors and successful facility bond passage. References included.

The Evolving Role of the American Schoolhouse
Vol: 34, Num: 2
Pg. 13-14
Bradley, W.S.
Bradley traces the evolution of the school building from the one-room school house to present day plans. Whereas the original schoolhouse simply provided a shelter for learning, today's school buildings have developed into an instrument of learning. The role of architecture in schoolhouse construction contributed to the legitimacy of 'schooling' and facilitated curriculum expansion. The 21st century presents an opportunity to redefine and utilize the partnership between architecture and education.

The Development of the Israeli Education System in a Period of Mass Immigration, and the Construction of Tens of Thousands of Apartments Each Year
Vol: 34, Num: 2
Pg. 15-20
Kna'ani, Shai
A wave of Soviet immigration to Israel during the early 1990's created a change in population distribuiton which impacted the construction of schools in Israel. Kna'ani found no correlation between the number of new apartments constructed and school enrollment levels, indicating the ineffectiveness of this method to predict future student population. Kna'ani describes how the Israeli Government employed a safer method by attempting to forcast the number of students through extrapolation of existing data, including family size and age distribution of the immigrants. However, budget constraints made it impossible to meet all forcasted construction needs. The solution was to construct the schools in stages, as dictated by need. The effects of this policy are discussed.

Redesigning Facilities Management Information Systems for the 21st Century
Vol: 34, Num: 3
Pg. 14-16
McDonald, Fred, Michael Lancaster, and Mike Graham
The authors describe the development and implementation of the Facilities Management Information System (FMIS) utilized by the Durham Board of Education in Ontario, Canada. The District utilized technological resources to effectively manage their facilities, resulting in increased efficiency, better staff utilization, and decreased expenses in managing their facilities.

Determining Realistic School Capacity
Vol: 34, Num: 3
Pg. 17-19
Chan, T.C.
Chan presents a formula for calculating school capacity, and discusses factors to consider when determining the number of classrooms and class size. Chan also describes how to evaluate existing school capacity in reference to the educational program, services and scheduling, as well as other factors. Sample School Capacity Assessment Worksheets for elementary, middle and high schools are included.

E Pluribus Unum: The New American Community School
Vol: 34, Num: 3
Pg. 5-6
Bingler, Steven
Bingler asserts the importance of building learning environments which are integrative to community institutions, buildings and programs. Education, government, socio-economics and the physical environment are interdependent parts of the same community system. An integrative approach to creating learning environments would not only improve education, but all reflect positively upon all aspects of the community at large.

New Schools from Old Space
Vol: 34, Num: 3
Pg. 7-13
Peters, Ron and Molly Smith
Our existing educational facilities were often constructed 50 or more years ago, and are not equipped to meet the enrollment and educational needs of today. The authors give a very thorough, step-by-step description of how to evaluate and maximize a school's existing resources when renovating. Included is a discussion of compiling information on the educational program to assess the facility's academic and interior space needs. Calculation models and sample floorplans are included.

Understanding the Community and School Disrict: Developing Presentations to the Board of Education
Vol: 34, Num: 4
Pg. 11-14
Ryland, James A. and Bradford J. Furey
Understanding the community is important not only to securing the contract, but to effectively serving the school district as well. This article discusses ways to research the organizational culture and climate of the school district and the community it serves. A checklist of potential culture and climate variables is provided. The characteristics and needs of the school district should be matched with the firm's philosophy and strengths. References included.

Building Schools for Today and Tomorrow, Not Yesterday: Maximizing Dollars and Planning in Providing Computer and Technological Features for Modern Schools
Vol: 34, Num: 4
Pg. 15-18
Beggs, D.W.
Beggs stresses the importance of designing technologically advanced schools, and enabling students to utilize existing technological resources in their learning. Technology should be functional, yet invisibly integrated into the facility as a learning resource. Technology should not be complex to use, but immediately accessible and reliable. School planners should design schools for inclusion in the technological future.

Lighting Quantity and Quality in Educational Facilities
Vol: 34, Num: 4
Pg. 5-8
Elwazanim, Salim A.
This article lists five factors to consider in lighting decisions (lighting quality, lighting quantity, architectural aesthetics, energy conservation and costs), and examines two aspects—lighting quantity and quality. Luminaire layout is explored, and a table on luminaire distribution patterns is presented. Aspects of lighting quality such as contrast, glare and color are also covered.

Designing a Distance Learning Facility
Vol: 34, Num: 4
Pg. 9-10
Lambert, Michael P.
A distance education facility serves different functions than a traditional education building. This article presents the functions and special features of a distance education facility. The author lists factors to consider, such as technology and wiring, office space, and the space/equipment to process a large paper flow.

Variables Confounding School Enrollment Predictions
Vol: 35, Num: 2
Pg. 11-17
Stewart, Kent G.
Stewart examines the limitations of the commonly-used chort survival method of enrollment projection. A list of 19 possible intervening variables is presented. Each variable may potentially alter future enrollment, yet may not be accounted for in the standard cohort-survival forcasting method. Districts should factor the potential effect of these variables when making enrollment predictions.

Lessons from Curitiba
Vol: 35, Num: 2
Pg. 17-18
Bradley, William S.
Bradley provides lessons learned from Curitaba, Brazil's sustainable urban facility designs, and relates them to educational design in the United States. One unique educational inititive in Curitaba is the 'lighthouses of knowledge' concept—35 facilities around the city (often located adjacent to public schools) housing over 300,000 books, journals and other resources. Another initiative is the creation of 'citizenship streets,' with all social/community services in one central location. Curitaba's efforts may be of interest to U.S. educators and architects when designing educational facilities.

Children, Computers and School Furniture
Vol: 35, Num: 2
Pg. 5-7
Maxwell, Lorraine E.
While students increasingly use computers in the classroom for educational purposes, the lighting and design of the computer workstation has not been adequately addressed. Research shows that poor workstation design can influence posture and increase the liklihood of musculoskeletal injuries. Maxwell provides recommended guidelines for educational facility professionals planning computer workstations.

Guidelines for Success: A Case Study
Vol: 35, Num: 2
Pg. 8-9
Pate, Steven H. and Orvin Clark
Pate and Clark discuss how Grayslake Community SD used a creative business plan to open a new elementary school, two and a half years before expected under traditional funding. The district entered into a land partnership with the Park District, where they shared a common site. The team planning approach—the owner, CM and architect in constant contact—greatly advanced the progress of the project.

Schools for the World's Poor—Honduras
Vol: 35, Num: 2
Pg. Insert
DeJong, William S.
This special insert describes the formation of the Heart to Honduras project, and the subsequent involvement of a group of CEFPI members. A team of educational facility planners traveled to Honduras to conduct a facility assessment of rural village schools. This involvement eventually led to the construction of a new model school in Honduras.

A Well Designed School Environment Facilitates Brain Learning
Vol: 35, Num: 3
Pg. 12-15
Chan, Tak Cheung and Garth Petrie
Chan and Petrie provide a research review on the effect of the environment on brain learning. The authors briefly describe how the brain learns. Next, they discuss how space, color, lighting, temperature and acoustics can either facilitate or inhibit brain learning. Finally, they offer school design suggestions to maximize brain learning. References are included.

No Summer Vacation: The Challenges of Summer Construction
Vol: 35, Num: 3
Pg. 16-17
Frei, Emil
Frei addresses the challenges of accomplishing school renovation projects during the summer vacation months. He examines the unique community and safety issues that arise when the facility is closed for summer construction. The tight schedule of the summer break makes careful pre-planning and coordinated teamwork especially important. Districts should also allot ample time for any 'surprises' that may occur during construction, especially when working with older buildings.

Defining Capacity
Vol: 35, Num: 3
Pg. 18-22
DeJong, William S. and Joyce Craig
Recent trends in education—such as the integration of technology, reduction in class size, and addition of special programs to the curriculum—have changed functional building capacity over the last 30 years. The authors present guidelines for determining functional building capacity for elementary, middle and high schools, including unique space considerations for each type of facility. Methods of calculation are included.

American Trends in School Design
Vol: 35, Num: 3
Pg. 5-7
Passantino, Richard J.
Passantino presents how demographic changes, new teaching paradigms, the integration of technology, and community collaboration will affect educational facility design in the new millenium. New facility space will be needed to accomodate a growing student population. Classroom design will change to allow increased interaction in the classroom, with the teacher serving as a facilitator. The introduction of computer technology in classrooms will require more space per student. Community collaborations will lead to creative plans for shared space. It is important that facilities professionals are mindful of these trends when planning schools for the new millenium.

The Use of Construction Management by Indiana School Districts: Frequency and Cost
Vol: 35, Num: 3
Pg. 8-11
Kowalski, Theodore J. and John T. Coopman
A recent study evaluated the use of construction management(CM) in Indiana school projects approved in 1994-1995. Researchers found that 53-56 percent of schools used CM during these years, a slight increase from previous years. On average, CM fees amounted to 4.36 percent of construction costs in 1994, and 4.01 percent of costs in 1995. Indiana districts were more likely to contract CM services on a flat fee basis than as a percentage of the construction costs. The researchers were unable to substantiate a relationship between construction costs and CM fees. A brief history of the practice of CM is included, along with references.

Job Order Contracting
Vol: 36, Num: 2
Pg. 4-10
Kashiwagi, Dean T.
Kashiwagi provides a thorough analysis of the Job Order Contracting (JOC) delivery system, including a discussion of the advantages and disadvantages. Data on JOC contractor performance in Arizona, California and Hawaii collected by the Center for Job Order Contracting Excellence (CJE) is presented to illustrate the benefits and obstacles to the JOC construction delivery system. The "low bid" award process can present an obstacle to the JOC system, as it demands that contractors lower their prices while still keeping quality high. Kashiwagi demonstrates how JOC is the most effective delivery system for facility projects.

Classroom Size and Number of Students per Classroom
Vol: 36, Num: 2
Pg. 11-12
Tanner, Kenneth C.
"Smaller is better" is a phrase common in the educational planning arena in 2001. But is size the only issue? This article reports on school facility research from the perspective of density and size, including a chart based on the concept of "social distance." The author concludes that smaller classes should not be achieved by simply dividing existing small spaces, as this will further contribute to the density problem.

The Cornerstone of Education
Vol: 36, Num: 2
Pg. 13-17
Anderson, Karen L.
While adults demand an acoustically adequate environment at professional conferences, children are not given that same consideration when it comes to classrooms. This well-researched article summarizes the acoustical barriers to learning that exist in classrooms today, and the effects that these conditions have on student learning. Special considerations for students with hearing difficulties are also presented.

Improving Cost Efficiencies for the Architect During the Construction Administration Process
Vol: 36, Num: 2
Pg. 18
Pettit, Michelle M.
This article summarizes the advantages to utilizing a plan check firm in school construction projects—both from the perspective of the owner and the architect. While plan check firms have traditionally been hired by owners, architects are increasingly employing such firms as consultants during the construction administration process. Use of plan check firms can save time and money by reducing the number of RFI's and change orders.

Forming Small Learning Communities: Implementing Neighborhoods in an Existing High School
Vol: 36, Num: 3
Pg. 5-10
Lackney, Jeffrey A.
To maximize the benefits of smaller class sizes, is it adequate to simply reduce the number of students per class or must the actual physical learning space or classroom size be reduced as well? Such is one of the questions posed in a longitudinal research effort in its early stages of analysis. Using a Midwestern high school as a case study, the researcher will analyze the planning and restructuring of an exiting structure into a facility with neighborhoods, blocks and backyards. Questions addressed will include the building's contribution to a sense of sociality, as well as student reactions to the neighborhood design. Preliminary findings reveal administrators believe that the neighborhood design will have a positive impact on both school climate and connectedness. The author concludes by presenting the next stages of this important study.

Joint-Use School Facility Agreements Strengthen School Communities
Vol: 36, Num: 3
Pg. 11-13
Testa, Ken
Dr. Ken Testa explores the nature and effectiveness of joint-use agreements in California school districts. His study included interviews with several expert practitioners from various California districts, as well as a focus group of community professionals. Testa identifies the strategic practices central to creating effective joint-use facility agreements, as well as common barriers. The policy implications of this study's findings are examined.

The Impact of School Facilities on Student Achievement, Behavior, Attendance, and Teacher Turnover Rate in Central Texas Middle Schools
Vol: 36, Num: 3
Pg. 14-22
O'Neill, David J. and Arnold D. Oates
This well-researched study investigates the impact of school facility condition on student learning and behavior, as well as teacher turnover rates in Texas middle schools. Also assessed are the environmental aspects central to learning. Middle school principals utilized the Total Learning Environment Assessment (TLEA) instrument to evaluate the condition of their school buildings. Researchers report a positive relationship between facility condition and student achievement.

Where Our Children Learn Matters
Vol: 36, Num: 3
Pg. 23-26
Duke, Daniel and Jacqueline Griesdorn
The connection between school facility condition and learning is explored in a recent study conducted by the Thomas Jefferson Center for Educational Design. The project evaluates the effect of poor and overcrowded school facilities on how teachers teach and how students learn. Ninety-six percent of Virginia superintendents responded to the "School Facilities Impact Survey" assessing the impact of their facilities on conditions such as instructional time, teaching effectiveness, curriculum, pressure from state and federal mandates, and health and safety. Researchers find superintendents feel facilities do make a difference when it comes to teaching and learning. The researchers present their findings and provide policy-related recommendations for the state of Virginia.